REVISED 12/16

# Regulatory Analysis Form

(Completed by Promulgating Agency)

(All Comments submitted on this regulation will appear on IRRC's website)

***INDEPENDENT REGULATORY REVIEW COMMISSION***



(1) Agency

Environmental Protection

(2) Agency Number: 7

Identification Number: 552

IRRC Number: 3251

(3) PA Code Cite:

25 Pa Code Chapter 250

(4) Short Title:

Administration of the Land Recycling Program

(5) Agency Contacts (List Telephone Number and Email Address):

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(6) Type of Rulemaking (check applicable box):

- ☒ Proposed Regulation
- ☐ Final Regulation
- ☐ Final Omitted Regulation
- ☐ Emergency Certification Regulation;
  - ☐ Certification by the Governor
  - ☐ Certification by the Attorney General

(7) Briefly explain the regulation in clear and nontechnical language. (100 words or less)

This rulemaking proposes to amend 25 Pa. Code Chapter 250 (relating to administration of the land recycling program) to update Statewide health standard medium-specific concentrations (MSC) pertaining to cleanup of soil and groundwater contamination for many contaminants. The Department of Environmental Protection (DEP or Department) recommends these updates as part of its three-year review. This rulemaking also proposes to add MSCs for three new contaminants, namely Perfluorooctanoic Acid (PFOA), Perfluorooctance Sulfonate (PFOS), and Perfluorobutane Sulfonate (PFBS). These contaminants are within the Per- and Poly-fluoroalkyl Acid (PFAS) family of compounds for which the U.S. Environmental Protection Agency (EPA) has published toxicological data. The proposal would also clarify administrative elements of Chapter 250.

(8) State the statutory authority for the regulation. Include specific statutory citation.

This proposed rulemaking is authorized under sections 104(a) and 303(a) of the Land Recycling and Environmental Remediation Standards Act (Act 2) (35 P.S. §§ 6026.104(a) and-6026.303(a)), which direct the Board to adopt and amend periodically by regulation Statewide health standards for regulated

substances for each environmental medium, including any health-based standards adopted by the Federal government by regulation or statute, and health advisory levels (HAL), and which direct the Environmental Quality Board to promulgate appropriate mathematically valid statistical tests to define compliance with Act 2, and other regulations as necessary to implement the provisions of Act 2; and section 1920-A of The Administrative Code of 1929 (71 P.S. § 510-20), which authorizes the Board to formulate, adopt and promulgate rules and regulations that are necessary for the proper work of the Department.

(9) Is the regulation mandated by any federal or state law or court order, or federal regulation? Are there any relevant state or federal court decisions? If yes, cite the specific law, case or regulation as well as, any deadlines for action.

This proposed rulemaking is not mandated under Federal law. Federal law, however, encourages states to develop programs for voluntary clean-up of contaminated sites. See 42 U.S.C. § 9628 (relating to State response programs). On April 21, 2004, the U.S. Environmental Protection Agency (EPA) and the Department signed the One Cleanup Program Memorandum of Understanding (One Cleanup Program) under the agencies' authority under the Federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. § 9601—9675) and Act 2 (35 P.S. 6026.101—6026.908), respectively, that requires DEP to ensure, among other things, that voluntary responses conducted under Act 2 are protective of human health and the environment and that DEP review every report relating to the investigation, assessment and clean-up of a site submitted by a remediator. The One Cleanup Program encourages DEP regularly to review the efficacy of Chapter 250.

State law requires the promulgation of this rulemaking. Section 303(a) of Act 2, 35 P.S. § 6026.303(a), mandates that "[t]he Environmental Quality Board shall promulgate Statewide health standards for regulated substances for each environmental medium," and that "[t]he standards shall include any existing numerical residential and nonresidential health-based standards adopted by the Department and by the Federal Government by regulation or statute, and health advisory levels [HAL]." The term "HAL" is defined in section 103 of Act 2 (35 P.S. § 6026.103) as "[t]he health advisory levels published by the United States Environmental Protection Agency for particular substances." When section 303(a) and this definition of HALs are read in context, they require that the Environmental Quality Board (EQB) adopt as an MSC a HAL once published by EPA. In 2016, EPA published HALs for PFOS and PFOA. For both substances, the EQB is proposing in this rulemaking to include the standards from those HALs as Act 2 groundwater standards and is using the underlying data from those HALs to develop soil standards. For PFBS, the EQB is proposing both groundwater and soil MSCs that incorporate data for its calculations from an EPA Provisional Peer-Reviewed Toxicity Value (PPRTV) study, which EPA published in July 2014. For PFBS, PFOS, and PFOA, Section 250.306 (relating to ingestion numeric values) provides the applicable formulas under which the Department calculates the proposed soil and groundwater MSCs.

This rulemaking is also required under 25 Pa. Code § 250.11 (relating to periodic review of MSCs), which requires DEP to regularly review new scientific information that relates to the basis of the MSCs and to propose appropriate regulations to the EQB whenever necessary, but not later than 36 months from the effective date of the most recently promulgated regulations. The most recent of these rulemakings took effect on August 26, 2016. See 46 Pa.B. 5655 (August 26, 2016).

(10) State why the regulation is needed. Explain the compelling public interest that justifies the regulation. Describe who will benefit from the regulation. Quantify the benefits as completely as possible and approximate the number of people who will benefit.

The proposed rulemaking is needed to comply with the Department's obligation under 25 Pa. Code § 250.11 to review scientific information that serves as the basis for Act 2 MSCs and to propose appropriate changes to the EQB, when necessary. The proposed rulemaking is also necessary to incorporate the HALs published by EPA regarding PFOS and PFOA. Finally, the proposed rulemaking is needed to clarify a variety of administrative components related to different reports necessary to comply with Chapter 250 site remediation requirements.

There are several public interests justifying this proposed rulemaking.

First, the public would benefit from having groundwater and soil MSCs that reflect up-to-date science and toxicological information. The changes in the MSCs in this proposed rulemaking would serve both the public and the regulated community because they would provide MSCs based on the most up-to-date health and scientific information for substances that cause cancer or have other toxic effects on human health. The EQB first published Chapter 250 regulations in 1997. 27 Pa.B. 4181 Section 104(a) of Act 2, 35 P.S. § 6026.104(a), recognizes that these standards must be updated over time as better science becomes available and as the need for clarification or enhancement of the program becomes apparent.

Potential contamination of soil and groundwater from accidental spills and unlawful disposal can impact almost any resident of this Commonwealth. Many of the chemical substances addressed in this proposed rulemaking are systemic toxicants or carcinogens as defined under Act 2 and, in some cases, are widespread in use. Examples of substances that contain toxic or carcinogenic properties include gasoline and petroleum products, solvents, elements used in the manufacture of metals and alloys, pesticides, herbicides, and some dielectric fluids previously contained in transformers and capacitors. Releases of regulated substances not only pose a threat to the environment, but also could affect the health of the general public if inhaled or ingested. New research on many of these substances is frequently developed and provides the basis for protection of the residents of this Commonwealth through site cleanup requirements.

Although most of the changes to soil numeric values in this proposed rulemaking would decrease the numeric values, 17% of the values would increase. Increases in values reflect updated information related to exposure limitations to the substances and acknowledge that a higher standard is better representative of those substances' exposure thresholds.

Second, the public would benefit from the promulgation of soil and groundwater MSCs for PFOS, PFOA and PFBS because the MSCs would allow remediators to address groundwater and soil contamination and thereby lessen public exposure to the contaminants. These remediators tend to be owners, operators or purchasers – or their contractors – of properties and facilities including, or located in the vicinity of, military bases, municipalities, and other locations that used or stored fire-fighting foam. EPA reports that contamination from these chemicals has also been associated with manufacturing textiles, food packaging, personal care products, and other materials such as cookware that are resistant to water, grease and stains. See Fact Sheet, EPA, PFOA & PFOS Drinking Water Health Advisories (November 2016) (available at https://www.epa.gov/sites/production/files/2016-06/documents/drinkingwaterhealthadvisories_pfoa_pfos_updated_5.31.16.pdf).

Third, remediators would benefit from the amendments that clarify administrative elements of Act 2, making for a more efficient and streamlined remediation process.

The benefits of this proposed rulemaking are difficult to quantify because, unlike other statutory or permitting schemes, Act 2 does not prevent contamination but instead provides remediators with a variety of options to address sites that have existing contamination. In that sense, the proposed rulemaking, consistent with Act 2, benefits the public because it allows for more efficient and more expedient remediation and reuse of contaminated areas.

(11) Are there any provisions that are more stringent than federal standards? If yes, identify the specific provisions and the compelling Pennsylvania interest that demands stronger regulations.

No provisions are more stringent than Federal cleanup standards. In fact, Act 2 prohibits any standards that are more stringent than Federal standards. Act 2 states that "[t]he department shall not establish procedures for determining attainment of remediation standards where maximum contaminant levels and health advisory levels have already been established for regulated substances." See 35 P.S. § 6026.301(c) (related to determining attainment). Act 2 further states that "standards adopted under this section [Section 303 Statewide health standard] shall be no more stringent than those standards adopted by the Federal Government." See 35 P.S. § 6026.303(a) (relating to Statewide Health Standard). Federal standards typically are MCLs promulgated by EPA to address drinking water under the Federal Safe Drinking Water Act.

The Department anticipates receiving comments that it may not promulgate standards that are more stringent than EPA Regional Screening Levels (RSLs) related to various contaminants. RSLs are initial screening levels used by EPA at Federal CERCLA "Superfund" sites to evaluate the sites' potential contamination levels to determine if EPA or another party should pursue further response action. RSLs are not Federal "standards" such as MCLs. Further explanation of EPA RSLs can be found at: https://www.epa.gov/risk/regional-screening-levels-frequent-questions#Background. As noted above, DEP standards under Act 2 are not restricted by and may be more stringent than EPA RSLs.

(12) How does this regulation compare with those of the other states? How will this affect Pennsylvania's ability to compete with other states?

The proposed updates to Chapter 250 would not affect Pennsylvania's ability to compete with other states.

The existing Chapter 250 regulations provide a uniform Statewide health standard that is not available in many other states. In comparison, the Federal government and many states do not have similar generic cleanup values and instead require a site-specific risk analysis at every site to establish a numeric value that is then used to determine the completion of soil and groundwater cleanup. Act 2 provides for a Statewide health standard that can be used as an efficient way to clean up sites, particularly where small spills and releases contaminate soil. This does not negate the opportunity to conduct a risk analysis. Act 2 also provides the ability to conduct a risk analysis to establish a cleanup value on an individual-site basis through the site-specific cleanup standard.

The existing regulations and the proposed rulemaking promote and facilitate the remediation and redevelopment of idle and underutilized commercial and industrial sites while protecting the public health and the environment.

(13) Will the regulation affect any other regulations of the promulgating agency or other state agencies? If yes, explain and provide specific citations.

The proposed rulemaking would not directly affect any of the Department's existing regulations or any regulations promulgated by other state agencies. While some Department regulations incorporate elements of Chapter 250 by reference, this proposed rulemaking would not require the Department to update any other regulations separate from Chapter 250. For example, Chapter 245 regulations (relating to Administration of Storage Tank and Spill Prevention Program) require that various components of storage tank spill corrective actions comport with site investigation or remediation requirements within Chapter 250.

(14) Describe the communications with and solicitation of input from the public, any advisory council/group, small businesses and groups representing small businesses in the development and drafting of the regulation. List the specific persons and/or groups who were involved. ("Small business" is defined in Section 3 of the Regulatory Review Act, Act 76 of 2012.)

The Department worked with the Cleanup Standards Scientific Advisory Board (CSSAB) during the development of this proposed rulemaking. CSSAB, established by Section 105 of Act 2 (35 P.S. § 6026.105), consists of persons representing a cross-section of experience, including engineering, biology, hydrogeology, statistics, medicine, chemistry, toxicology and other related fields. The purpose of the CSSAB is to assist the Department and the EQB in developing Statewide health standards, determining the appropriate statistically and scientifically valid procedures and risk factors to be used, and providing other technical advice as needed to implement Act 2. During CSSAB meetings on August 1, 2018, February 13, 2019, June 12, 2019, and October 29, 2019, CSSAB members were given the opportunity to review and provide feedback on draft regulatory amendments to Chapter 250. The Department worked with the CSSAB to resolve concerns and agreed to evaluate additional suggestions during the next review cycle for this rulemaking. Following these presentations and discussions, the CSSAB issued a letter regarding the proposed regulatory amendments included in this rulemaking. Specifically, the CSSAB noted concern related to the MSCs for vanadium.

A listing of CSSAB members and minutes of CSSAB meetings are available on the Department's website at www.dep.pa.gov (select "Public Participation," then "Advisory Committees").

(15) Identify the types and number of persons, businesses, small businesses (as defined in Section 3 of the Regulatory Review Act, Act 76 of 2012) and organizations which will be affected by the regulation. How are they affected?

The proposed amendments to Chapter 250 would affect owners of contaminated sites, operators of commercial and industrial facilities where hazardous substances are spilled onto soil or are released into groundwater, and purchasers of historically contaminated brownfield sites that are intended for redevelopment. A brownfield site is a property that's current or future use is impaired by a real or perceived contamination. This proposed rulemaking would also protect public health by minimizing exposure to substances released into the shared environment.

Overall, no particular category of person, business or organization is expected to be substantially adversely affected by the proposed updates to Chapter 250. A majority of the small businesses that DEP can identify as potentially being affected by this proposal are owners of small gasoline stations. For many of the impacted businesses, the costs would be absorbed through insurance policies because many of these businesses are required under section 704(a)(1) of the Storage Tanks and Spill Prevention Act (35 P.S. § 6021.704(a)(1) (relating to establishment of fund)) to participate in the Underground Storage Tank Indemnification Fund. This fund provides insurance coverage for the costs to clean up releases from underground storage tanks, regardless of the MSC value used at the site.

In addition to gasoline stations, the types of businesses that may be affected by this proposed rulemaking include fuel distribution facilities, commercial facilities that use toxic or carcinogenic chemicals, manufacturing operations and redevelopers of brownfield sites.

There are approximately 12,000 facilities in this Commonwealth that contain regulated underground and above ground storage tanks, including gasoline stations and fuel distribution and storage facilities. Of those 12,000 facilities, a portion includes small gasoline station owners. Small businesses also make up some of the commercial facilities that use toxic or carcinogenic substances. Because of the broad potential reach of this proposed rulemaking, DEP cannot reasonably identify further specifics on the number of small businesses that would potentially be affected by property contamination. The number of completed remediations vary each year. On average, remediators apply the Act 2 remediation standard to approximately 800 contaminated properties across the Commonwealth. Generally, any cost related to a given site remediation depends in large part on which regulated substances are being remediated and what the specific soil and groundwater conditions are at the site.

The proposed changes to Chapter 250 are not expected to increase costs or provide any significant savings for the regulated community. Chapter 250 contains MSCs for 400 regulated substances. The MSCs are divided into two environmental media: groundwater and soil. See, for example, §§ 250.304 and 250.305 (relating to MSCs for groundwater; and MSCs for soil.) The same regulated substance – for example, Trichloroethylene (TCE) – may have standards in both soil and groundwater. The soil MSCs provide standards for direct contact with and ingestion of soil. The groundwater MSCs provide standards related to human consumption of groundwater or the inhalation of volatile substances in groundwater. Under this proposal, the MSC values for many regulated substances are being changed for a variety of reasons. The two most common reasons for the proposed changes are Federal agency (including EPA and U.S. Department of Health Agency for Toxic Substances and Disease Registry) changes in toxicity values that are used in calculating MSC values and a change in the EPA's underlying assumption of a person's average daily consumption of water from 2 liters a day (L/day) to 2.4L/day. The soil numeric values represent a decrease for approximately 83% of the values and an increase for 17% of the values. For groundwater, the proposed changes reflect a decrease for approximately 92% of the values and an increase in approximately 8% of the values. Lowering the values may indicate that a more stringent cleanup is required at a site and increasing the values may indicate that a less stringent cleanup is required at a site.

The financial impact on a given site remediation depends – and under the proposal would depend – on the regulated substances being remediated and the soil and groundwater conditions at a particular site. For example, a site with a tight clay soil profile might not allow contaminants to spread horizontally or vertically, in which case the amount of soil to be excavated would not significantly change to meet a lower or higher MSC value.

In addition to the proposed changes in MSCs, this proposed rulemaking includes amendments to provide clarity to the administrative requirements and to ensure that references to various guidance and other sources are appropriate and consistent. These amendments would streamline the remediation process for the Department and for developers.

Accordingly, the Department believes that there would be little if any adverse impact to any particular category of person, business (including small businesses) or organization. Please also see the response to item (10), above, regarding benefits, and to item (24), below, for more information regarding small businesses.

(16) List the persons, groups or entities, including small businesses that will be required to comply with the regulation. Approximate the number that will be required to comply.

This proposed amendment to Chapter 250 would impact any person addressing a release of a regulated substance at a property, whether voluntarily or as a result of an order by the Department but would not impact any particular category person with additional or new regulatory obligations. Under Act 2, a remediator may voluntarily select the standard to which to remediate. To complete a remediation, a person must then comply with all relevant remediation standards and administrative requirements. This proposed rulemaking would not affect the voluntary nature of Act 2.

The types of businesses that may need to comply with the regulations include gasoline stations, fuel distribution facilities, commercial facilities that use toxic or carcinogenic chemicals, manufacturing operations and redevelopers of brownfield sites. There are about 12,000 facilities in this Commonwealth that contain regulated underground and aboveground storage tanks, including gasoline stations and fuel distribution and storage facilities. Some of these facilities would include small gasoline station owners. Small businesses would also make up some of the commercial facilities that use toxic or carcinogenic substances. Not all of these facilities have releases or accidental spills that result in a cleanup obligation.

The number of completed remediations vary each year. On average, remediators apply the Act 2 remediation standard to approximately 800 contaminated properties across the Commonwealth. The Department does not expect that the proposed amendments would impact the number of remediations voluntarily completed or those that must be completed as a result of Department enforcement actions.

As noted above in the response to Question 15, while these proposed amendments would not likely impact a specific category of person or company, the amendments would still affect many types of responsible parties who need to address contamination under Chapter 250. The Department expects the impact of the proposed updates to Chapter 250 to be insignificant on persons and businesses that are attempting to complete the remediation process under Chapter 250.

Please also see the response to Question 15.

(17) Identify the financial, economic and social impact of the regulation on individuals, small businesses, businesses and labor communities and other public and private organizations. Evaluate the benefits expected as a result of the regulation.

The proposed amendments to the Statewide health MSCs reflect the latest toxicological data on health effects on humans exposed to hazardous and toxic chemicals. Updating the MSCs in this manner helps

to assure potentially affected residents of this Commonwealth and persons, including businesses, small businesses and other organizations, interested in buying and redeveloping contaminated sites that the MSCs are protective of human health.

Financially and economically, the Department expects the impact of the proposed amendments to Chapter 250 to be insignificant costs increases and insignificant cost savings for the regulated community. Under this proposal, the MSC values for many regulated substances are being changed for a variety of reasons. The two most common reasons for the proposed changes are Federal agency (including EPA and U.S. Department of Health Agency for Toxic Substances and Disease Registry) changes in toxicity values that are used in calculating MSC values and a change in the EPA's underlying assumption of a person's average daily consumption of water from 2L/day to 2.4L/day. The soil numeric values represent a decrease for approximately 83% of the values and an increase for 17% of the values. For groundwater, the proposed changes reflect a decrease for approximately 92% of the values and an increase in approximately 8% of the values. Lowering the values may indicate that a more stringent cleanup is required at a site and increasing the values may indicate that a less stringent cleanup is required at a site. The number of completed remediations vary each year. On average, remediators apply the Act 2 remediation standard to approximately 800 contaminated properties across the Commonwealth. The Department does not expect that the proposed amendments would impact the number of remediations voluntarily completed or the number that must be completed because of Department enforcement actions.

Further, the proposed updates to Statewide health standard MSCs would not affect a remediator's ability to choose one or a combination of cleanup standards.

The Department believes that any potential impacts to the regulated community would be insignificant.

This proposed rulemaking will benefit all citizens of the Commonwealth. The proposed amendments to the Statewide health MSCs would reflect the latest toxicological data on human health effects that can occur when humans are exposed to hazardous and toxic chemicals. Updating the MSCs based on the latest toxicological data helps to assure potentially affected residents of this Commonwealth and persons, including businesses, small businesses and other organizations, interested in buying and redeveloping contaminated sites, that the MSCs are protective of human health.

Not only would this proposed rulemaking update existing MSCs, but it would also add groundwater standards for PFOS and PFOA from the HALs EPA published in 2016 and soil standards for PFOS and PFOA using the underlying data from the EPA HALs, as well as the groundwater and soil PFBS MSCs generated using EPA's Provisional Peer-Reviewed Toxicity Values (PPRTV) data. Having these new MSCs would allow remediators to address PFOS, PFOA and PFBS groundwater and soil contamination. This would benefit the public by lessening public exposure to these contaminants. This would also benefit remediators wishing to remediate contaminated sites, who tend to be owners, operators or purchasers – or their contractors – of properties and facilities include, or are at or near, military bases, municipalities, and other locations that used or stored fire-fighting foam.

Remediators would benefit from the amendments that clarify many of the administrative elements of Act 2, making for more efficient and streamlined Act 2 remediations.

Please also see the response to Question 10.

(18) Explain how the benefits of the regulation outweigh any cost and adverse effects.

As described more fully in the responses to Questions 10 and 17, there are important benefits to this proposed rulemaking. They include protecting the public with updated MSCs reflecting the latest toxicological data, adding new MSCs for 3 chemical compounds (PFOS, PFOA and PFBS), exposure to which, according to EPA, could cause adverse effects in humans, including developmental effects to a fetus during pregnancy or to infants during breastfeeding, cancer (e.g., testicular, kidney), liver effects (e.g., tissue damage), immune effects (e.g., antibody production), thyroid effects, and others (e.g., cholesterol). The proposed amendments would also streamline Act 2 remediations.

These benefits outweigh any costs and adverse effects of the proposed rulemaking, which the Department expects to be insignificant.

The proposed amendments to the Statewide health MSCs reflect the latest toxicological data on human health effects that can occur when humans are exposed to hazardous and toxic chemicals. Updating the MSCs in this manner helps to assure potentially affected residents of this Commonwealth and persons, including businesses, small businesses and other organizations, interested in buying and redeveloping contaminated sites that the MSCs are protective of human health. In particular, the proposed rulemaking would allow remediators to address PFOS and PFOA groundwater and soil contamination.

The Department anticipates little if any cost or adverse effects from this proposal. The soil numeric values represent a decrease for approximately 83% of the values and an increase for 17% of the values. For groundwater, the proposed changes reflect a decrease for approximately 92% of the values and an increase in approximately 8% of the values. Lowering the values may indicate a more stringent cleanup is required at a site and increasing the values may indicate a less stringent cleanup is required at a site. The number of completed remediations vary each year. On average, remediators apply the Act 2 remediation standard to approximately 800 contaminated properties across the Commonwealth.

The cost impact on a given site remediation would depend on the regulated substances being remediated and the soil and groundwater conditions at the site. For example, a site with a tight clay soil profile might not allow contaminants to spread horizontally or vertically, in which case the amount of soil to be excavated would not significantly change to meet a lower or higher MSC value.

Please also see the responses to Questions 10 and 17.

(19) Provide a specific estimate of the costs and/or savings to the **regulated community** associated with compliance, including any legal, accounting or consulting procedures which may be required. Explain how the dollar estimates were derived.

The Department anticipates little if any costs or savings from this proposal. The soil numeric values represent a decrease for approximately 83% of the values and an increase for 17% of the values. For groundwater, the proposed changes reflect a decrease for approximately 92% of the values and an increase in approximately 8% of the values. Lowering the values may indicate a more stringent cleanup is required at a site and increasing the values may indicate a less stringent cleanup is required at a site. The number of completed remediations vary each year. On average, remediators apply the Act 2 remediation standard to approximately 800 contaminated properties across the Commonwealth. The cost impact on a given site remediation would depend on the regulated substances being remediated and the soil and groundwater conditions at the site. For example, a site with a tight clay soil profile might not

allow contaminants to spread horizontally or vertically, in which case the amount of soil to be excavated would not significantly change to meet a lower or higher MSC value.

The proposed rulemaking would not require any new legal, accounting or consulting procedures.

(20) Provide a specific estimate of the costs and/or savings to the **local governments** associated with compliance, including any legal, accounting or consulting procedures which may be required. Explain how the dollar estimates were derived.

The amendments are not expected to impact costs or savings for local governments. Although, in some instances, local governments are remediators; however, as with all other types of remediators, this proposed rulemaking is not expected to increase costs or result in significant savings.

Please also see the response to item (19) above.

(21) Provide a specific estimate of the costs and/or savings to the **state government** associated with the implementation of the regulation, including any legal, accounting, or consulting procedures which may be required. Explain how the dollar estimates were derived.

The amendments are not expected to impact costs or savings for state government agencies. Although, in some instances, state government agencies are remediators; however, as with all other types of remediators, this proposed rulemaking is not expected to increase costs or result in significant savings.

Please also see the response to Question 19.

(22) For each of the groups and entities identified in items (19)-(21) above, submit a statement of legal, accounting or consulting procedures and additional reporting, recordkeeping or other paperwork, including copies of forms or reports, which will be required for implementation of the regulation and an explanation of measures which have been taken to minimize these requirements.

The proposed amendments to Chapter 250 would not require any additional recordkeeping or paperwork. No new or revised forms or reports are required.

(22a) Are forms required for implementation of the regulation?

No new or revised forms or reports are required.

(22b) If forms are required for implementation of the regulation, **attach copies of the forms here.** If your agency uses electronic forms, provide links to each form or a detailed description of the information required to be reported. **Failure to attach forms, provide links, or provide a detailed description of the information to be reported will constitute a faulty delivery of the regulation.**

No new or revised forms or reports are required.

(23) In the table below, provide an estimate of the fiscal savings and costs associated with implementation and compliance for the regulated community, local government, and state government for the current year and five subsequent years.

| This amendment is not expected to impact costs or savings. | | | | | | |
|---|---|---|---|---|---|---|
| | **Current FY Year** | **FY +1 Year** | **FY +2 Year** | **FY +3 Year** | **FY +4 Year** | **FY +5 Year** |
| **SAVINGS:** | **$** | **$** | **$** | **$** | **$** | **$** |
| **Regulated Community** | $0 | $0 | $0 | $0 | $0 | $0 |
| **Local Government** | $0 | $0 | $0 | $0 | $0 | $0 |
| **State Government** | $0 | $0 | $0 | $0 | $0 | $0 |
| **Total Savings** | $0 | $0 | $0 | $0 | $0 | $0 |
| **COSTS:** | $0 | $0 | $0 | $0 | $0 | $0 |
| **Regulated Community** | $0 | $0 | $0 | $0 | $0 | $0 |
| **Local Government** | $0 | $0 | $0 | $0 | $0 | $0 |
| **State Government** | $0 | $0 | $0 | $0 | $0 | $0 |
| **Total Costs** | $0 | $0 | $0 | $0 | $0 | $0 |
| **REVENUE LOSSES:** | $0 | $0 | $0 | $0 | $0 | $0 |
| **Regulated Community** | $0 | $0 | $0 | $0 | $0 | $0 |
| **Local Government** | $0 | $0 | $0 | $0 | $0 | $0 |
| **State Government** | $0 | $0 | $0 | $0 | $0 | $0 |
| **Total Revenue Losses** | $0 | $0 | $0 | $0 | $0 | $0 |

(23a) Provide the past three-year expenditure history for programs affected by the regulation.

| **Program** | **FY -3 2016-17** | **FY -2 2017-18** | **FY -1 2018-19** | **Current FY 2019-20** |
|---|---|---|---|---|
| Environmental Protection Operations 160-10381 | $86,462,000 | $89,215,000 | $93,190,000 | $84,523,000 |
| Environmental Program Management 161-10382 | $26,885,000 | $29,413,000 | $30,932,000 | $28,420,000 |

| | | | | |
|---|---|---|---|---|
| Industrial Land Recycling Fund 689-60080 | $296,000 | $289,000 | $263,000 | $300,000 |
| Hazardous Sites Cleanup Fund 202-20070 | $25,677,000 | $23,750,000 | $22,738,000 | $24,000,000 |
| Storage Tank Fund 210-20073 | $8,654,000 | $4,886,000 | $9,026,000 | $4,484,000 |

(24) For any regulation that may have an adverse impact on small businesses (as defined in Section 3 of the Regulatory Review Act, Act 76 of 2012), provide an economic impact statement that includes the following:

(a) An identification and estimate of the number of small businesses subject to the regulation.

A majority of the small businesses that DEP can identify as potentially being affected by this proposal are owners of small gasoline stations. In addition to gasoline stations, the types of businesses that may be affected by this proposed rulemaking include fuel distribution facilities, commercial facilities that use toxic or carcinogenic chemicals, manufacturing operations and redevelopers of brownfield sites. There are about approximately 12,000 facilities in this Commonwealth that contain regulated underground and above ground storage tanks, including gasoline stations and fuel distribution and storage facilities. Of those 12,000 facilities, some would include small gasoline station owners. Small businesses would also make up some of the commercial facilities that use toxic or carcinogenic substances. Chapter 250, and this proposed rulemaking, have the potential to impact a broad universe of businesses, persons and organizations, any of which could need to address contamination at any given time. Because of the breadth of reach of Chapter 250, DEP cannot identify further specifics on the types and numbers of small businesses that would potentially be affected by property contamination. Act 2 and Chapter 250 are unique from other statutes and regulations because they do not create permitting or corrective action obligations. Instead, Act 2 and Chapter 250 provide remediators options to address contamination and any associated liability that arises under other statutes. For example, adding PFOS to the Chapter 250 Appendix does not create any liability or obligation related to PFOS. Instead, a person's liability arises under the Clean Stream Law while Act 2 and Chapter 250 provide that person the means to resolve their Clean Streams law liability and to address the contamination. In this way, Act 2 and Chapter 250 do not create new obligations that will impact a particular category of person like a new permitting obligation or corrective action regulation would.

(b) The projected reporting, recordkeeping and other administrative costs required for compliance with the proposed regulation, including the type of professional skills necessary for preparation of the report or record.

The amendments to the Chapter 250 regulations do not add any new procedures, recordkeeping or compliance efforts. The proposed rulemaking would clarify in proposed Section 250.12 (relating to professional seal) that reports submitted as part of the Act 2 process that contain information or analysis that constitutes professional geologic or engineering work under the Engineer, Land Surveyor, and Geologist Registration Law must be sealed by a professional geologist or engineer. Existing sections 250.204(a), 250.312(a) and 250.408(a) (relating to final report; final report; and remedial investigation report) require that "[i]nterpretations of geologic and hydrogeologic data shall be *prepared* by a

professional geologist licensed in this Commonwealth." (emphasis added). The proposed amendment in section 250.12 would moot any concern over what it means to "prepare" one of these reports.

(c) A statement of probable effect on impacted small businesses.

The amendments to the Chapter 250 regulations are not expected to increase costs or provide any significant savings for small businesses. As noted above in response to Question 15, many of the small businesses that may be impacted by this proposed rulemaking are gasoline stations, and for many of these businesses, the costs would be covered by insurance because many of these businesses are required by Section 704(a)(1) of the Storage Tanks and Spill Prevention Act to participate in the Underground Storage Tank Indemnification Fund. This fund provides insurance coverage for the costs to clean up releases from underground storage tanks, regardless of the MSC value used at the site.

Small businesses that handle hazardous substances can use pollution prevention techniques available through various assistance programs to prevent spills that would result in contamination of soil and groundwater. In addition, background and site-specific cleanup standards are available and not affected by the proposed updates to the Statewide health MSCs.

In addition to the Underground Storage Tank Indemnification Fund coverage, the Pennsylvania Department of Community and Economic Development (DCED), primarily through its Industrial Sites Reuse Program, offers many entities that are eligible for brownfield financial assistance, which includes small business, potential grants or loans for the assessment and remediation of soil and groundwater contamination at eligible properties.

(d) A description of any less intrusive or less costly alternative methods of achieving the purpose of the proposed regulation.

The Department is unaware of any less intrusive or less costly alternative methods of achieving the purpose of the proposed rulemaking, which is to update various MSCs based on current scientific information. Background and site-specific cleanup standards are available alternatives to the regulated community and would not be affected by the proposed updates to the Statewide health MSCs in this proposed rulemaking. As discussed above in the responses to Questions 9, 10, and 14, Act 2 requires that the EQB and DEP evaluate data related to current MSCs and promulgate new standards, where necessary. Further, Act 2 requires DEP to incorporate applicable Federal standards, such as EPA's PFOS and PFOA standards (published in 2016), and EPA's HALs.

(25) List any special provisions which have been developed to meet the particular needs of affected groups or persons including, but not limited to, minorities, the elderly, small businesses, and farmers.

The proposed amendments to Chapter 250 do not include special provisions to meet the needs of the groups listed because the proposed amendments are not expected to adversely affect any listed group. Please see the responses to Questions 15, 17, and 24 regarding expected impacts of this proposed rulemaking.

(26) Include a description of any alternative regulatory provisions which have been considered and rejected and a statement that the least burdensome acceptable alternative has been selected.

No alternative regulatory provisions were considered and rejected. The least burdensome acceptable alternatives – which is required by statute and regulation – have been selected. The amendments in this proposed rulemaking are required under Act 2 and the existing Chapter 250 regulations, which require the periodic update of the Statewide health standard. Alternatives to meeting MSCs in Act 2 remediations already exist. They are the background and site-specific cleanup standards that already exist in Chapter 250 and would not be affected by the proposed updates to the Statewide health MSCs in this proposed rulemaking.

(27) In conducting a regulatory flexibility analysis, explain whether regulatory methods were considered that will minimize any adverse impact on small businesses (as defined in Section 3 of the Regulatory Review Act, Act 76 of 2012), including:

a) The establishment of less stringent compliance or reporting requirements for small businesses;

b) The establishment of less stringent schedules or deadlines for compliance or reporting requirements for small businesses;

c) The consolidation or simplification of compliance or reporting requirements for small businesses;

d) The establishment of performing standards for small businesses to replace design or operational standards required in the regulation; and

e) The exemption of small businesses from all or any part of the requirements contained in the regulation.

The proposed amendments are expected to have an insignificant impact on small businesses; therefore, no regulatory methods were considered to minimize adverse impacts.

(a) This proposed rulemaking does not affect any Act 2 compliance requirements. Under Act 2, a remediator may voluntarily select the standard to which to remediate. To complete a remediation, a person must then comply with all relevant technical and administrative requirements. Act 2 establishes the schedules related to reports necessary to comply with those remediation standards. See, for example, the notice and review provisions in sections 302(e), 303(h) and 304(n) of Act 2 (relating to background standard; Statewide health standard; and sight-specific standard). See 35 P.S. §§ 6026.302(e), 6026.303(h), and 6026.304(n). As a result, the Department and the EQB have limited ability to alter schedules, deadlines and reporting requirements. In addition, reporting obligations under Act 2 generally apply only to the Department (in other words, the Department must review and approve a submitted report within a particular timeframe), and not to other parties.

(b) Please see the response to Question 19(a).

(c) Please see the response to Question 19(a).

(d) Chapter 250 does not have design or operation standards. Act 2 does not authorize relaxing MSC values for particular categories of remediators.

(e) Small businesses, small organizations and small governmental jurisdictions were considered but are not exempt from any provisions of the regulations. Chapter 250 does not take into account the size or nature of a particular entity that may own a contaminated site and the need to address it under Act 2.

(28) If data is the basis for this regulation, please provide a description of the data; explain in detail how the data was obtained, and how it meets the acceptability standard for empirical, replicable and testable data that is supported by documentation, statistics, reports, studies or research. Please submit data or supporting materials with the regulatory package. If the material exceeds 50 pages, please provide it in a searchable electronic format or provide a list of citations and internet links that, where possible, can be accessed in a searchable format in lieu of the actual material. If other data was considered but not used, please explain why that data was determined not to be acceptable.

Act 2 and the Chapter 250 regulations require the periodic evaluation of the MSCs. The Department bases this evaluation on nationally recognized, peer-reviewed toxicological data, including cancer slope and unit risk factors, reference dose values and reference concentrations published under the Integrated Risk Information System (IRIS), the National Center for Environmental Assessment, Provisional Peer-Reviewed Toxicity Values (PPRTV), the Health Effects Assessment Summary Tables, Agency for Toxic Substances and Disease Registry (ATSDR) Toxicological Profiles, and California EPA Cancer Potency Factors and Chronic Reference Exposure Levels.

This information is published by the EPA (https://cfpub.epa.gov/ncea/iris_drafts/atoz.cfm?list_type=alpha) and (https://hhpprtv.ornl.gov/), the United States Centers for Disease Control (https://www.atsdr.cdc.gov/mrls/mrllist.asp), and the California Office of Environmental Health Hazard Assessment (https://oehha.ca.gov/chemicals) and is used by all state environmental and health departments in the country for conducting risk assessments for potential exposure to contaminants in soil and groundwater.

Additional information can be accessed at:

EPA's 2018 Drinking Water Standards and Advisory Tables (for PFOA and PFOS toxicity values)
EPA's Provisional Peer Reviewed Toxicity Values (PPRTV) Database (for PFBS toxicity values)

(29) Include a schedule for review of the regulation including:

| | |
|---|---|
| A. The length of the public comment period: | 60 days |
| B. The date or dates on which any public meetings or hearings will be held: | March 17, 18, and 25, 2020 |
| C. The expected date of delivery of the final-form regulation: | Quarter 1, 2021 |
| D. The expected effective date of the final-form regulation: | Quarter 1, 2021 |
| E. The expected date by which compliance with the final-form regulation will be required: | Quarter 1, 2021 |
| F. The expected date by which required permits, licenses or other approvals must be obtained: | N/A |

(30) Describe the plan developed for evaluating the continuing effectiveness of the regulations after its implementation.

The Department regularly evaluates the continuing effectiveness of Chapter 250 because 25 Pa. Code § 250.11, require that DEP regularly review new scientific information that relates to the basis of the MSCs and that DEP propose appropriate regulations to the EQB whenever necessary, but not later than 36 months from the effective date of the most recently promulgated regulations. DEP's efforts in this regard include ongoing tracking of remediations completed under the program and annual preparation of a program report.

CDL-1

**FACE SHEET**
**FOR FILING DOCUMENTS**
**WITH THE LEGISLATIVE REFERENCE BUREAU**

**(Pursuant to Commonwealth Documents Law)**

RECEIVED
JAN 27 2020
Independent Regulatory Review Commission

DO NOT WRITE IN THIS SPACE

Copy below is hereby approved as to form and legality Attorney General

By: [signature] (Deputy Attorney General)

JAN 03 2020
DATE OF APPROVAL

☐ Check if applicable
Copy not approved. Objections attached.

Copy below is hereby certified to be true and correct copy of a document issued, prescribed or promulgated by:

DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD
(AGENCY)

DOCUMENT/FISCAL NOTE NO. 7-552

DATE OF ADOPTION NOVEMBER 19, 2019

BY [signature]

TITLE PATRICK MCDONNELL
CHAIRPERSON

EXECUTIVE OFFICER CHAIRPERSON OR SECRETARY

Copy below is hereby approved as to form and legality Executive or Independent Agencies

BY Marisa A Z Lehr

DEC 10 2019
DATE OF APPROVAL

(Deputy General Counsel)
(~~Chief Counsel - Independent Agency~~)
(Strike inapplicable title)

☐ Check if applicable. No Attorney General Approval or objection within 30 days after submission.

NOTICE OF PROPOSED RULEMAKING

DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD

Administration of the Land Recycling Program

25 Pa. Code Chapter 250

Notice of Proposed Rulemaking
Department of Environmental Protection
Environmental Quality Board
(25 Pa. Code, Chapter 250)
(Administration of the Land Recycling Program)

The Environmental Quality Board (Board) proposes to amend 25 Pa. Code, Chapter 250 (relating to administration of the land recycling program). This rulemaking is proposed under 25 Pa. Code § 250.11 (relating to the periodic review of MSCs), which requires that the Department of Environmental Protection (Department) review new scientific information that relates to the basis of the Statewide health standard medium-specific concentrations (MSCs) at least 36 months after the effective date of the most recently promulgated MSCs and to propose to the Board any changes to the MSCs as necessary. In addition to updating the existing MSCs, the proposed rulemaking would add MSCs for three new contaminants, namely Perfluorooctanoic Acid (PFOA), Perfluorooctane Sulfonate (PFOS), and Perfluorobutane Sulfonate (PFBS). These contaminants are within the Per- and Poly-fluoroalkyl Acid (PFAS) family of compounds for which EPA has published toxicological data. This proposed rulemaking would also clarify several other regulatory requirements.

This proposal was adopted by the Board at its meeting on November 19, 2019.

A. *Effective Date*

These amendments would go into effect upon publication in the *Pennsylvania Bulletin* as a final rulemaking.

B. *Contact Persons*

For further information contact Lee McDonnell, Program Manager, Land Recycling Program, P.O. Box 8471, Rachel Carson State Office Building, Harrisburg, PA 17105-8471, (717) 783-3006, or Robert Schena, Assistant Counsel, Bureau of Regulatory Counsel, P.O. Box 8464, Rachel Carson State Office Building, Harrisburg, PA 17105-8464, (717) 783-8072. Information regarding submitting comments on this proposal appears in Section J of this preamble. Persons with a disability may use the AT&T Relay Service by calling 1-800-654-5984 (TDD users) or 1-800-654-5988 (voice users). This proposed rulemaking is available on the Department's website at www.dep.pa.gov (select "Public Participation," then "Environmental Quality Board (EQB)").

C. *Statutory Authority*

This proposed rulemaking is authorized under sections 104(a) and 303(a) of the Land Recycling and Environmental Remediation Standards Act (Act 2), (35 P.S. §§ 6026.104(a) -6026.303(a)), which direct the Board to adopt and amend periodically by regulation Statewide health standards for regulated substances for each environmental medium, including any health-based standards adopted by the Federal government by regulation or statute, and health advisory levels (HAL), and which direct the Board to promulgate appropriate mathematically valid statistical tests to

define compliance with Act 2, and other regulations as necessary to implement the provisions of Act 2; and section 1920-A of The Administrative Code of 1929 (71 P.S. § 510-20), which authorizes the Board to formulate, adopt and promulgate rules and regulations that are necessary for the proper work of the Department.

D. *Background and Purpose*

Section 250.11 of the Department regulations requires that the Department review new scientific information that is used to calculate MSCs under the Statewide health standard and propose appropriate changes at least every 36 months following the effective date of the most recently promulgated MSCs. See 25 Pa. Code § 250.11. The Board most recently promulgated MSCs became effective upon publication in the *Pennsylvania Bulletin* on August 27, 2016. See 46 Pa.B. 5655. These proposed changes, based on new information, would protect public health and the environment and would provide the regulated community with clear information regarding the requirements of Act 2 and Chapter 250 related to the remediation of contaminated sites.

In addition to updating Chapter 250 MSCs, this proposed rulemaking would include changes that would add groundwater and soil MSCs for three compounds in the PFAS family – PFBS, PFOS, and PFOA. The proposed standards for these three chemicals are based on data in toxicological studies published by the United States Environmental Protection Agency (EPA). Under Act 2, the Department has directly incorporated EPA's 2016 HALs regarding PFOS and PFOA as groundwater MSCs and has used the data developed by EPA for those HALs to calculate soil MSCs for both compounds. With respect to PFBS, the Department is proposing soil and groundwater standards based on a 2014 EPA Provision Peer-Reviewed Toxicity Value (PPRTV).

Finally, this proposed rulemaking would clarify a number of procedural issues related to the administrative requirements of Act 2. In particular, this proposed rulemaking would clarify requirements for remediators and municipalities regarding public participation and public involvement plans, update requirements for acceptable "practical quantity limits" related to the precision of laboratory testing, update requirements for professional seals from professional geologists or engineers, provide resources to calculate MSCs, and clarify the proper submission of various reports related to the Act 2 Site-Specific Standard.

This proposed rulemaking would impact any person addressing a release of a regulated substance at a property, whether voluntarily or as a result of an order by the Department. This proposed rulemaking would not impact any particular category of person with additional or new regulatory obligations. Under Act 2, a remediator may select the standard to which to remediate. To complete a remediation, the remediator must then comply with all relevant remediation and administrative standards.

As noted above, this rulemaking will not singularly affect one specific industry or person. This proposed rulemaking will impact the owners and operators of storage tank facilities that have had a release of a petroleum or hazardous substance. There are approximately 12,000 storage facilities in the Commonwealth. Some of these facilities are owned and/or operated by small businesses. Because of the broad potential reach of this regulation, it is not possible to identify specifics on the types and numbers of small businesses that could potentially be affected by

property contamination. In addition, Act 2 and Chapter 250 are unique from other statutes and regulations because they do not create permitting or corrective action obligations. Instead, Act 2 and Chapter 250 provide remediators with options to address contamination and any associated liability that arises under other statutes. For example, adding PFOS to the Chapter 250 Appendix does not create any liability or obligation related to PFOS. Instead, a person's liability arises under the Clean Stream Law while Act 2 and Chapter 250 provide that person the means to resolve their Clean Streams law liability and to address the contamination. In this way, Act 2 and Chapter 250 do not create new obligations that will impact a particular category of person like a new permitting obligation or corrective action regulation would.

The soil numeric values represent a proposed decrease for approximately 83% of the values and an increase for 17% of the values. For groundwater, the proposed changes reflect a decrease for approximately 92% of the values and an increase in approximately 8% of the values. Lowering the values may indicate a more stringent cleanup is required at a site and increasing the values may indicate a less stringent cleanup is required at a site. These proposed changes reflect updated information related to exposure limitations to these substances and recognize that a higher or lower standard is better representative of those substances' exposure thresholds.

The number of completed remediations vary each year. On average, remediators apply the Act 2 remediation standard to approximately 800 contaminated properties across the Commonwealth. Generally, any cost related to a given site remediation depends in large part on which regulated substances are being remediated and what the specific soil and groundwater conditions are at the site.

The Department worked with the Cleanup Standards Scientific Advisory Board (CSSAB) during the development of this proposed rulemaking. The CSSAB, which was established by Section 105 of Act (35 P.S. § 6026.105), consists of persons representing a cross-section of experience, including engineering, biology, hydrogeology, statistics, medicine, chemistry, toxicology and other related fields. The purpose of the CSSAB is to assist the Department and the Board in developing Statewide health standards, determining the appropriate statistically and scientifically valid procedures and risk factors to be used, and providing other technical advice as needed to implement Act 2. During CSSAB meetings on August 1, 2018, February 13, 2019, June 12, 2019, and October 29, 2019, CSSAB members were given the opportunity to review and provide feedback on draft regulatory amendments to Chapter 250. The Department worked with the CSSAB to resolve concerns and agreed to evaluate additional suggestions during the next review cycle for this rulemaking. Following these presentations and discussions, the CSSAB issued a letter related to the proposed regulatory amendments included in this rulemaking. Specifically, the CSSAB noted concern related to the MSCs for vanadium.

A listing of CSSAB members and minutes of CSSAB meetings are available on the Department's website at www.dep.pa.gov (select "Public Participation," then "Advisory Committees").

E. *Summary of Regulatory Requirements*

*§ 250.1. Definitions*

This proposed rulemaking would add a definition for the term "MDL—Method detection limit" because both "method detection limit" and "MDL" are used in Chapter 250 but are not defined. The proposed definition is consistent with EPA's definition in (U.S. EPA Office of Water Publication EPA 821-R-16-006, 2016).

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This proposed rulemaking would amend the definition of "volatile compound" to match the description in Section IV, Appendix IV-A.1 of the Department's Land Recycling Program Technical Guidance Manual (TGM) and to match EPA's definition in their *OSWER* (Office of Solid Waste and Emergency Response) *Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (OSWER Publication 9200.2-154, 2015). The current definition excludes naphthalene as well as several other semi-volatiles that are considered volatiles in the vapor intrusion section of the TGM. The Department's TGM is available at https://www.dep.pa.gov/Business/Land/LandRecycling/Standards-Guidance-Procedures/Guidance-Technical-Tools/Pages/Technical-Guidance-Manual.aspx.

*§ 250.4. Limits related to PQLs.*

Proposed amendments to this section would update the references and procedures for determining the practical quantitation limit (PQL) and would remove confusing and outdated language. Improvements in laboratory instrument technology and the removal of PQLs and estimated quantitation limits (EQLs) from revised laboratory methods resulted in the need to update this section.

*§ 250.6. Public participation.*

The proposed amendments to § 250.6(c) would clarify that if a public involvement plan (PIP) has been initiated, the public has a right to be involved in the development and review of the remedial investigation report, risk assessment report, cleanup plan and final report consistent with Section 304(o) of Act 2 (35 P.S. § 6026.304(o)) (relating to Community involvement) and outlines the necessary measures to involve the public.

The proposed amendments to § 250.6(d) would help to ensure that the Department and the municipality requesting the PIP are notified of the submission of the PIP and receive copies of the PIP. These proposed amendments necessitate the removal of §§ 250.6(d)(1) and (2) because it no longer makes sense to include them in (d). These subsections were also removed because they are already discussed in Chapter 250 in the final report requirements section for the SSS (§ 250.411(e)) and remediation requirements section for SIA sites (§ 250.503(f)). Finally, these two subsections were removed because the current Chapter 250 regulations require that the public involvement plan be submitted with the remedial investigation report or baseline environmental report. The proposed change is necessary because DEP needs notice of PIPs *in advance* of receipt of those reports.

*§ 250.10. Measurement of regulated substances in media.*

The proposed amendments to § 250.10(d) would change the references from the Groundwater Monitoring Guidance Manual to reference to the most current version of Appendix A (relating to groundwater monitoring guidance) of the TGM or an alternative method that appropriately measures regulated substances in groundwater.

*§ 250.12. Professional seal.*

This proposed new section mirrors language from § 245.314 (relating to professional seals) of the storage tank regulations, requiring that reports submitted to the Department which include professional geologic or engineering work be sealed by a professional geologist or engineer.

*§ 250.304. MSCs for groundwater.*

Under subsection (c), the EPA publication number has been revised.

Under subsection (g), this proposed rulemaking would list additional sources of aqueous solubility information to support the new compounds proposed to be added to the MSC tables in this rulemaking. Thus, the following aqueous solubility sources are proposed be added to § 250.304(g):

19. ATSDR (Agency for Toxic Substances and Disease Registry). 2015. *Toxicological Profile for Perfluoroalkyls. Draft for Public Comment.* Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Atlanta, GA. Accessed May 2016. http://www.atsdr.cdc.gov/ToxProfiles/tp200.pdf.

20. Hekster, F.M., R.W. Laane, and P. de Voogt. 2003. *Environmental and toxicity effects of perfluoroalkylated substances. Reviews of Environmental Contamination and Toxicology* 179:99–121.

21. HSDB (Hazardous Substances Data Bank). 2012. U.S. National Library of Medicine, Bethesda, MD. Accessed May 2016. http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB.

22. Kauck, E.A., and A.R. Diesslin. 1951. *Some properties of perfluorocarboxylic acids. Industrial & Engineering Chemistry Research* 43(10):2332–2334.

23. SRC (Syracuse Research Corporation). 2016. PHYSPROP Database. Accessed May 2016. http://www.srcinc.com/what-we-do/environmental/scientific-databases.html.

24. OECD (Organisation for Economic Co-operation and Development). 2002. *Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts.* ENV/JM/RD (2002) 17/FINAL. Report of the Environment Directorate, Joint Meeting of the Chemicals Committee and the Working Party on Chemicals, Pesticides and Biotechnology, Co-operation on Existing Chemicals, Paris, November 21, 2002.

*§ 250.305. MSCs for soil.*

Under subsection (c), a minor correction to a cross-reference is proposed.

The proposed amendments to § 250.305(g) would alleviate confusion as to the need to evaluate the soil-to-groundwater pathway for compounds that have secondary maximum contaminant levels (SMCLs) and either a primary MCL or a HAL. These proposed changes would also allow for the determination of soil MSC values for substances with SMCLs but no toxicological information in Appendix A, Table 5B, of Chapter 250. This determination would be based on the physical capacity of the soil to contain a regulated substance as described in § 250.305(b). This proposed change, along with other proposed changes to subsection (g), would result in the ability of remediators to determine soil MSCs for chloride and sulfate that also incorporate impacts to ecological receptors as described in § 250.311(a) through (f) (relating to evaluation of ecological receptors).

*§ 250.306. Ingestion numeric values.*

Due to new information published by EPA in Exposure Factors Handbook 2011 Edition, EPA/600/R-090/052F, the residential groundwater ingestion rate would increase from 2 liters a day (L/day) to 2.4 L/day. This proposed amendment would result in additional changes to other exposure factors listed in the table and footnotes in § 250.306(d). Formatting errors in the table footnotes in this section would also be corrected. Some of the equations in the footnotes contain brackets that should not be confused with brackets used to delineate changes proposed in the rulemaking. Bolded text within bolded brackets represents text to be removed while unbolded brackets encompass existing text not proposed for removal.

Proposed amendments to § 250.306(e) would update the models used to calculate blood lead levels that are applied to the corresponding lead numeric value calculations. The new model references would also be updated in this subsection.

*§ 250.307. Inhalation numeric values.*

A proposed amendment to the equation in § 250.307(g)(1) would add a "x 24 hr/day" multiplier to the numerator. This component was inadvertently omitted from this equation in the previous rulemaking.

*§ 250.308. Soil to groundwater pathway numeric values.*

In section § 250.308(a)(2)(ii), the word "standard" would be replaced with "generic numeric value" to avoid the implication that the $1/10^{th}$ value is always the soil MSC for saturated soil and to avoid the implication that the comparison process should be bypassed.

*§ 250.311. Evaluation of ecological receptors.*

Amendments to § 250.311(b) are proposed to directly reference the proposed changes to § 250.305(g) and to reference the physical capacity of the soil to contain a regulated substance as described in § 250.305(b).

*§ 250.402. Human health and environmental protection goals.*

Proposed amendments to § 250.402(d) would resolve confusion and ensure the correct application of 250.311(e) to protect ecological receptors under the site-specific standard.

A proposed amendment to § 250.402(d)(3) would correct and replace the reference to § 230.311(f) with § 250.311(f).

*§ 250.404. Pathway identification and elimination.*

Under subsection (a), proposing to add the words "Department or" to allow for the use of Department guidance in identifying exposure pathways.

*§ 250.409. Risk assessment report.*

Proposed amendments to § 250.409(1) would clarify that an approved remedial investigation report is needed in advance of submitting an approvable risk assessment report when the reports are submitted separately. This proposed amendment is part of a clarification regarding the appropriate sequence of reports submitted under Subchapter D (relating to the site-specific standard), including a proposed new section for "combined reports", § 250.412, described below.

*§ 250.410. Cleanup plan.*

A new proposed § 250.410(d) would remove any ambiguity regarding the need for a cleanup plan in situations in which a remedy is already present. The current language in § 250.410(d) would be moved into a newly created section § 250.410(e).

*§ 250.412. Combined reports.*

This newly proposed section would explain that prior approval of a remedial investigation report is not necessary when combined with either a risk assessment report or a cleanup plan. This proposed section is necessary as a result of the changes made to § 250.410 concerning cleanup plans.

*§ 250.503. Remediation requirements.*

The proposed amendments to § 250.503(e) would clarify that a revised baseline environmental report, not just a new remediation plan, may need to be submitted when land use changes from non-residential to residential at a special industrial area (SIA) site.

*§ 250.603. Exposure factors for site-specific standards.*

The proposed amendment to § 250.603(a) would update the citation of the 1992 version of EPA's Final Guidelines for Exposure Assessment to EPA's 2011 Exposure Factors Handbook.

*§ 250.605. Sources of toxicity information.*

The proposed updates to § 250.605(a)(3) would add EPA's Office of Pesticide Programs Human Health Benchmarks for Pesticides and EPA's Provisional Peer-Reviewed Toxicity Value Appendix databases to the toxicity value source hierarchy.

*§ 250.707. Statistical tests.*

The term "Statewide health standard" would be changed to "MSC" in the proposed amendment to § 250.707(b)(1)(ii) for clarification.

A new clause (D) would be added to § 250.707(b)(1)(iii) clarifying when or whether a vapor intrusion analysis is necessary for sites with small petroleum releases where full site characterization is not performed.

*Appendix A, Tables 1-7*

Proposed amendments to the "Medium-Specific Concentrations" tables would update the MSCs for certain regulated substances. Updates to footnotes would be necessary to help explain some of the changes to the MSCs. Numeric values would be calculated for several new substances, including PFOS, PFOA and PFBS in groundwater and soil, and total polychlorinated biphenyls in soil. Ingestion-based numeric values would all decrease slightly due to the proposed increase in water ingestion rate under section § 250.306(d) from 2 L/day to 2.4 L/day. Other proposed numeric value changes would mostly be attributed to updates in toxicity values in Tables 5A and 5B. However, proposed corrections to the numeric value calculation process would also cause some numeric values to change.

The proposed update to the definition of a "volatile compound" would cause some of the values to change because the new definition would include the consideration of Henry's law constant and molecular weight. Additionally, some of the numeric values changes would be due to rounding adjustments. When the Department calculates the numeric MSC values for inclusion in Chapter 250, some values are rounded during one of the early calculation steps instead of at the end of the calculation. To be consistent, the rounding procedure would now be changed so that all rounding occurs at the final value calculation step. Elimination of the rounding of transfer factors would also cause changes to the numeric values. Transfer factors used for the calculation of inhalation numeric values from soil are calculated and listed in Table 5A. The transfer factors currently in Table 5A were rounded inconsistently. To be consistent with the other proposed rounding corrections, these values would no longer be rounded because they are calculated and used in the early stages of the numeric value calculation process.

In the proposed amendments, information would be updated on the "Threshold of Regulation Compounds" table (Table 6) by the removal of compounds that would have numeric values calculated on other tables.

Proposed amendments to the "Default Values for Calculating MSCs for Lead" table (Table 7) would update the input parameters for use in the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children for residential exposure. Proposed amendments for non-residential exposure would update the model input parameters for the Adult Lead Model (ALM). References for both models would also be updated. These proposed amendments would result in updates to the lead residential and nonresidential direct contact values provided in Table 4A.

F. *Benefits, Costs and Compliance*

*Benefits*

In enacting Act 2, the General Assembly found and declared among its policy goals that "[p]ublic health and environmental hazards cannot be eliminated without clear, predictable environmental remediation standards and a process for developing those standards," that "[a]ny remediation standards adopted by this Commonwealth must provide for the protection of public health and the environment," and that "[c]leanup plans should be based on actual risk that contamination on the site may pose to public health and the environment, taking into account its current and future use and the degree to which contamination can spread offsite and expose the public or the environment to risk." See 35 P.S. 6026.102 (relating to declaration of policy).

To effectuate this, the General Assembly authorized the Board and the Department to develop standards and methods to effectuate those goals. 35 P.S. §§ 6026.104 and 6026.303. The Department's regulatory structure, as authorized under Act 2 and as implemented by Chapter 250, provides those important benefits articulated in the General Assembly's declaration of policy.

The amendments to the MSCs in this proposed rulemaking would serve both the public and the regulated community because they would provide MSCs based on the most up-to-date health and scientific information for substances that cause cancer or have other toxic effects on human health. The Board first published Chapter 250 regulations in 1997. 27 Pa.B. 4181. (August 16, 1997). The General Assembly recognized, in section 104(a) of Act 2 (35 P.S. 6026.104(a)), that these standards must be updated over time as better science becomes available and as the need for clarification or enhancement of the program becomes apparent.

Potential contamination of soil and groundwater from accidental spills and unlawful disposal can impact almost any resident of this Commonwealth. Many of the chemical substances addressed in this proposed rulemaking are systemic toxicants or carcinogens as defined under Act 2 and, in some cases, are widespread in use. Examples of substances that contain toxic or carcinogenic properties include gasoline and other petroleum products, solvents, elements used in the manufacture of metals and alloys, pesticides, and some dielectric fluids previously contained in transformers and capacitors. Releases of regulated substances not only pose a threat to the environment, but also could affect the health of the general public if inhaled or ingested. New research on many of these substances is ongoing and provides the basis for protection of the residents of this Commonwealth through site cleanup requirements.

Although most of the changes to soil numeric values in this proposed rulemaking would decrease the numeric values, 17% of the values would increase. Increases in values reflect updated information related to exposure limitations to the substances and acknowledge that a higher standard is better representative of those substances' exposure threshold.

An additional benefit of this proposed rulemaking would be the promulgation of soil and groundwater MSCs for PFOS, PFOA and PFBS. Establishing these MSCs would allow remediators to address groundwater and soil contamination and thereby lessen public exposure to the contaminants. This will also benefit remediators wishing to remediate contaminated sites, who tend to be owners, operators or purchasers – or their contractors – of properties and facilities including, or at or near, military bases, municipalities and other locations that used or stored fire-fighting foam. EPA reports that contamination from these chemicals has also been associated with manufacturing textiles, food packaging, personal care products, and other materials such as cookware that are resistant to water, grease and stains. See Fact Sheet, EPA, PFOA & PFOS Drinking Water Health Advisories (November 2016) (available at https://www.epa.gov/sites/production/files/2016-06/documents/drinkingwaterhealthadvisories_pfoa_pfos_updated_5.31.16.pdf).

Finally, remediators would benefit from the proposed amendments that clarify many of the administrative elements of Act 2, making for a more efficient and streamlined Act 2 remediation process.

The benefits of this proposed rulemaking are difficult to quantify because, unlike other statutory or permitting schemes, Act 2 does not prevent contamination but instead provides remediators with a variety of options to addresses sites that have already been contaminated. In that sense, the proposed rulemaking, consistent with Act 2, benefits the public because it can lead to more efficient and more expedient remediation and reuse of contaminated areas.

*Compliance Costs*

Financially and economically, the Department believes that any potential impact to the regulated community would be insignificant. Under this proposal, the MSC values for many regulated substances are being amended for a variety of reasons. The two most common reasons for amendments are federal agency (including EPA and U.S. Department of Health Agency for Toxic Substances and Disease Registry) changes in toxicity values that are used in calculating MSC and a change in the EPA's underlying assumption of a person's average daily consumption of water from 2L/day to 2.4L/day. The soil numeric values represent a decrease for approximately 83% of the values and an increase for 17% of the values. For groundwater, the proposed changes reflect a decrease for approximately 92% of the values and an increase in approximately 8% of the values. Lowering the values may indicate a more stringent cleanup is required at a site and increasing the values may indicate a less stringent cleanup is required at a site. The number of completed remediations vary each year. On average, remediators apply the Act 2 remediation standard to approximately 800 contaminated properties across the Commonwealth. The Department does not expect that the proposed amendments would impact the number of remediations voluntarily completed or the number that must be completed as a result of Department enforcement actions.

The proposed updates to Statewide health standard MSCs would not affect the cleanup options available to remediators under other cleanup standards. Persons conducting remediation under Act 2 may choose from three different cleanup standards: background, Statewide health or site-specific.

The Department does not expect that this proposed rulemaking, as it relates to new MSCs for PFOA, PFOS, and PFBS, would create any additional costs. Act 2 does not create liability for, or the obligation to, address contamination for these and other chemicals. Instead, that obligation comes from other environmental statutes, including the Clean Streams Law (35 P.S. §§ 691.1-691.1001) and the Solid Waste Management Act (35 P.S. §§ 6018.101-6018.1003). Act 2 provides remediators with options to remediate contamination. Having these new MSCs would allow remediators to address PFOS, PFOA and PFBS groundwater and soil contamination. This would benefit the public by lessening public exposure to these contaminants.

*Compliance Assistance Plan*

The Land Recycling Program would disseminate information concerning these updates using the Department website and e-mails to environmental consultants involved in the program.

*Paperwork Requirements*

This proposed rulemaking would not result in any additional forms or reports, beyond those that are already required by Act 2 and Chapter 250.

G. *Pollution Prevention*

The Federal Pollution Prevention Act of 1990 (42 U.S.C.A. §§ 13101—13109) established a National policy that promotes pollution prevention as the preferred means for achieving state environmental protection goals. The Department encourages pollution prevention, which is the reduction or elimination of pollution at its source, through the substitution of environmentally friendly materials, more efficient use of raw materials and the incorporation of energy efficiency strategies. Pollution prevention practices can provide greater environmental protection with greater efficiency because they can result in significant cost savings to facilities that permanently achieve or move beyond compliance.

Act 2 encourages cleanup plans that have as a goal remedies which treat, destroy or remove regulated substances whenever technically and economically feasible. This proposed rulemaking would provide the necessary statewide health standard MSCs for remediators to remove contamination or eliminate exposure, where appropriate. In particular, this proposed rulemaking reflects the most up-to-date science, especially as it relates to the characterization and removal of contamination that exceeds Act 2 MSCs. During the remediation of a contaminated site, potential sources of pollution are often removed to attain the Act 2 standards, thus eliminating or minimizing the potential for continued migration of the sources of pollution to other areas.

H. *Sunset Review*

The Board is not establishing a sunset date for this proposed regulation because it is needed for the Department to carry out its statutory authority.

I. *Regulatory Review*

Under Section 5(a) of the Regulatory Review Act (71 P.S. § 745.5(a)), on January 27, 2020, the Department submitted a copy of these proposed amendments to the Independent Regulatory Review Commission (IRRC) and the Chairpersons of the House and Senate Environmental Resources and Energy Committees. In addition to submitting the proposed amendments, the Department has provided IRRC and the Committees with a copy of a detailed regulatory analysis form prepared by the department. A copy of this material is available to the public upon request.

Under section 5(g) of the Regulatory Review Act, IRRC may convey any comments, recommendations or objections to the proposed regulations within 30 days of the close of the public comment period. The comments, recommendations or objections shall specify the regulatory review criteria that have not been met. The Act specifies detailed procedures for review of these issues by the Department, the General Assembly and the Governor prior to final publication of the regulations.

J. *Public Comments*

Interested persons are invited to submit written comments, suggestions, support or objections regarding this proposed rulemaking to the Board. Comments, suggestions, support or objections must be received by the Board by April 14, 2020.

Comments may be submitted to the Board online, by e-mail, by mail or express mail as follows. Comments submitted by facsimile will not be accepted.

Comments may be submitted to the Board by accessing eComment at http://www.ahs.dep.pa.gov/eComment.

Comments may be submitted to the Board by e-mail at RegComments@pa.gov. A subject heading of this proposed rulemaking and a return name and address must be included in each transmission.

If an acknowledgement of comments submitted online or by e-mail is not received by the sender within two working days, the comments should be retransmitted to the Board to ensure receipt.

Written comments should be mailed to the Environmental Quality Board, P.O. Box 8477, Harrisburg, PA 17105-8477. Express mail should be sent to the Environmental Quality Board, Rachel Carson State Office Building, 16th Floor, 400 Market Street, Harrisburg, PA 17101-2301.

K. *Public Hearings*

The Board will hold 3 public hearings for the purpose of accepting comments on this proposed rulemaking. The hearings will be held at 6 p.m. on the following dates:

| | |
|---|---|
| March 17, 2020 | Department of Environmental Protection<br>Southcentral Regional Office<br>Susquehanna Conference Rooms A&B<br>909 Elmerton Avenue<br>Harrisburg, PA 17110 |
| March 18, 2020 | Department of Environmental Protection<br>Southwest Regional Office<br>Waterfront Conference Rooms A&B<br>400 Waterfront Drive<br>Pittsburgh, PA 15222 |
| March 25, 2020 | Warminster Township Library<br>1076 Emma Lane<br>Warminster, PA 18974 |

Persons wishing to present testimony at a hearing are requested to contact the Environmental Quality Board, P.O. Box 8477, Harrisburg, PA 17105-8477, (717) 787-4526 at least 1 week in advance of the hearing to reserve a time to present testimony. Oral testimony is limited to 5 minutes for each witness. Witnesses are requested to submit three written copies of their oral testimony to the hearing chairperson at the hearing. Organizations are limited to designating one witness to present testimony on their behalf at each hearing.

Persons in need of accommodations as provided for in the Americans with Disabilities Act of 1990 should contact the Board at (717) 787-4526 or through the Pennsylvania AT&T Relay Service at (800) 654-5984 (TDD) or (800) 654-5988 (voice users) to discuss how the Board may accommodate their needs

Patrick McDonnell
*Chairperson*

**ANNEX A**

**TITLE 25. ENVIRONMENTAL PROTECTION**
**PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SUBPART D. ENVIRONMENTAL HEALTH AND SAFETY**
**ARTICLE VI. GENERAL HEALTH AND SAFETY**
**CHAPTER 250. ADMINISTRATION OF LAND RECYCLING PROGRAM**

**Subchapter A. GENERAL PROVISIONS**

**§ 250.1. Definitions.**

* * * * *

*MCL*—Maximum contaminant level.

***MDL – Method detection limit* - The instrument-specific minimum measured concentration of a substance that can be reported with 99% confidence to be distinguishable from the method blank result.**

*MSC*—Medium-specific concentration.

* * * * *

*TF*—Transfer factor.

*Volatile compound* – A chemical compound with **either** a boiling point less than 200° centigrade at 1 atmosphere **or a Henry's law constant greater than or equal to 1 x $10^{-5}$ atm-$m^3$/mol and a molecular weight less than 200 g/mol, where:**

**atm = standard atmosphere**
**$m^3$ = cubic meter**
**mol = mole**
**g = gram**
**g/mol = molar mass**

**§ 250.4. Limits related to PQLs.**

(a) The PQLs shall be selected from the PQLs **or EQLs** specified by the EPA **[as EQLs]** in the most current version of **[the]** EPA**'s [RCRA Manual SW-846 (U. S. EPA, 1990. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* Third Edition. Office of Solid Waste and Emergency Response) for soil listed as "low level soil" and for**

**groundwater listed as "groundwater" in accordance with the following:]** **drinking water or solid waste analytical methods.**

**[(1) For inorganic compounds, the PQLs under this chapter shall be the values listed for methods associated with analysis by Inductively Coupled Plasma (ICP) with the following exceptions:**

**(i) For lead, cadmium, arsenic and selenium, values listed for the atomic absorption graphite furnace methods for water shall be used.**

**(ii) Mercury shall be the value listed for the cold vapor method.**

**(2) For organic compounds, the PQLs shall be the EQLs listed for the GC/Mass spec methods—for example, Method 8240 for volatile organic compounds.**

**(b) If the PQL selected under subsection (a) is higher than the MCL or HAL for an organic regulated substance in groundwater, the PQLs shall be derived from the analytical methodologies [published under the drinking water program in the most current version of *Methods for the Determination of Organic Compounds in Drinking Water* (U. S. EPA, 1988, Environmental Monitoring Systems Laboratory, EPA/600/4-88/039) If a PQL determined under this subsection is not below a HAL, the methodologies in subsection (c)(1) or (2) shall be used unless those quantitation limits are higher than the PQL determined under this subsection.]**

**[(c)]** **(b)** For regulated substances when **PQLs or** EQLs set by the EPA **exceed an MCL or HAL or** have a health risk that is greater (less protective) than the risk levels set in sections 303(c) and 304(b) and (c) of the act (35 P. S. § § 6026.303(c) and 6026.304(b) and (c)) **[or]** **and** for substances when no EQL has been established by the EPA, the **[limits related to the]** PQL shall be **[the quantitation limits]** established by the methodologies in paragraph (1) or (2).

(1) A level set by multiplying 3.18 by the published method detection limit (MDL) of the most recently approved EPA methodology.

(2) A level **[representing the lowest calibration point that can consistently be determined to have a percent relative standard deviation (%RSD) of less than 30% or correlation coefficient of greater than 0.995 using reagent water.]** **set by multiplying 3.18 by the instrument-specific MDL. If multiple instruments are used, then the PQL is set by averaging the instrument-specific MDLs and multiplying that value by 3.18.**

**[(d)]** **(c)** For regulated substances which have no limits related to PQLs identified in subsection **[(c)]** **(b)**(1) or (2), a person shall demonstrate attainment under the site-specific standard or the background standard.

**[(e)]** **(d)** When a minimum threshold MSC is used as a Statewide health standard, the minimum threshold MSC is the Statewide health standard regardless of whether it is higher or lower than a quantitation limit established by this section.

**[(f)]** **(e)** Nothing in this section restricts the selection of valid and generally accepted methods to be used to analyze samples of environmental media.

**§ 250.6. Public participation.**

* * * * *

(c) If a public involvement plan has been initiated, the person proposing remediation shall, at a minimum, **[provide]** **include the following three measures in the plan to involve the public in the development and review of the remedial investigation report, risk assessment report, cleanup plan and final report:**

(1) **Provide** **[P]**public access at convenient locations for document review.

(2) Designate**[ion of]** a single contact person to address questions from the community.

(3) **Use** **[A]**a location near the remediation site for any public hearings and meetings that may be part of the public involvement plan.

(d) If a public involvement plan has been requested, **[it shall be submitted with one of the following:]** **the person proposing the remediation shall notify the Department and submit the plan to the municipality and the Department prior to its implementation.**

**[(1) A remedial investigation report under a site-specific remediation.**

**(2) A baseline environmental report under an SIA cleanup.]**

**§ 250.10. Measurement of regulated substances in media.**

* * * * *

(d) For groundwater where monitoring is being performed at a drinking water well, samples for metals analysis shall be field acidified and unfiltered in accordance with the most current version of **[*Groundwater Monitoring Guidance Manual*]** ***Land Recycling Program Technical Guidance Manual, Appendix A: Groundwater Monitoring Guidance,*** Department of Environmental Protection, **[3610-BK-DEP1973]** **document number 261-0300-101, or in accordance with an alternative sampling method that accurately measures regulated substances in groundwater**.

* * * * *

**§ 250.12. Professional seal.**

**Reports submitted to satisfy this subchapter containing information or analysis that constitutes professional geologic or engineering work as defined by the Engineer, Land Surveyor and Geologist Registration Law (63 P.S. § § 148—158.2) must be sealed by a professional geologist or engineer who is in compliance with that statute.**

## Subchapter C. STATEWIDE HEALTH STANDARDS

* * * * *

### § 250.304. MSCs for groundwater.

* * * * *

(c) The MSCs for regulated substances contained in groundwater in aquifers used or currently planned to be used for drinking water or for agricultural purposes are the MCLs as established by the Department or the EPA in § 109.202 (relating to State MCLs, MRDLs and treatment technique requirements). For regulated substances where no MCL has been established, the MSCs are the Lifetime Health Advisory Levels (HAL) set forth in Drinking Water Standards and Health Advisories (DWSHA), EPA Office of Water Publication No. EPA **[822-S-12-001 (April 2012]822-F-18-001 (March 2018** or as revised), except for substances designated in the DWSHA with cancer descriptor (L) "Likely to be carcinogenic to humans" or (L/N) "Likely to be carcinogenic above a specific dose but not likely to be carcinogenic below that dose because a key event in tumor formation does not occur below that dose." New or revised MCLs or HALs promulgated by the Department or the EPA shall become effective immediately for any demonstration of attainment completed after the date the new or revised MCLs or HALs become effective.

* * * * *

(g) The references referred to in subsection (f) are:

* * * * *

**(19) ATSDR (Agency for Toxic Substances and Disease Registry). 2015. *Toxicological Profile for Perfluoroalkyls. Draft for Public Comment.* Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Atlanta, GA. Accessed May 2016. http://www.atsdr.cdc.gov/ToxProfiles/tp200.pdf.**

**(20) Hekster, F.M., R.W. Laane, and P. de Voogt. 2003. *Environmental and toxicity effects of perfluoroalkylated substances. Reviews of Environmental Contamination and Toxicology* 179:99–121.**

**(21) HSDB (Hazardous Substances Data Bank). 2012. U.S. National Library of Medicine, Bethesda, MD. Accessed May 2016. http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB.**

**(22) Kauck, E.A., and A.R. Diesslin. 1951. *Some properties of perfluorocarboxylic acids. Industrial & Engineering Chemistry Research* 43(10):2332–2334.**

**(23) SRC (Syracuse Research Corporation). 2016. PHYSPROP Database. Accessed May 2016. http://www.srcinc.com/what-we-do/environmental/scientific-databases.html.**

**(24) OECD (Organisation for Economic Co-operation and Development). 2002. *Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts.* ENV/JM/RD (2002) 17/FINAL. Report of the Environment Directorate, Joint Meeting of the Chemicals Committee and the Working Party on Chemicals, Pesticides and Biotechnology, Co-operation on Existing Chemicals, Paris, November 21, 2002.**

**§ 250.305. MSCs for soil.**

* * * * *

(c) For the residential standard, the MSC for regulated substances contained in soil is one of the following:

(1) The lowest of the following:

(i) The ingestion numeric value throughout the soil column to a depth of up to 15 feet from the existing ground surface as determined by the methodology in § 250.306 (relating to ingestion numeric values), using the appropriate default residential exposure assumptions contained in § 250.306**[(e)]**(d).

* * * * *

(g) A person conducting a remediation of soils contaminated with **[a]** **one or more** substances having a secondary MCL**, but no toxicological properties listed in Appendix A, Table 5B,** will not be required to comply with **either the direct contact pathway or** the soil-to-groundwater pathway requirements for those substances **[to protect groundwater in aquifers for drinking water]**. **The substances shall be subject to the requirements of § 250.311(a) through (f) (relating to evaluation of ecological receptors) with respect to evaluation of ecological receptors.**

**§ 250.306. Ingestion numeric values.**

* * * * *

(d) The default exposure assumptions used to calculate the ingestion numeric values are as follows:

| Term | | Residential | | Nonresidential (Onsite Worker) |
|---|---|---|---|---|
| | | Systemic[1] | Carcinogens[2,6] | |
| THQ | Target Hazard Quotient | 1 | N/A | 1 |
| $RfD_o$ | Oral Reference Dose (mg/kg-day) | Chemical-specific | N/A | Chemical-specific |
| BW | Body Weight (kg) | | N/A | |
| | Soil | 15 | | 80 |
| | Groundwater | 80 | | 80 |
| $AT_{nc}$ | Averaging Time for systemic toxicants (yr) | | | |
| | Soil | 6 | N/A | 25 |
| | Groundwater | 30 | N/A | 25 |
| Abs | Absorption (unitless)[3] | 1 | 1 | 1 |
| EF | Exposure Frequency (d/yr) | | | |
| | Soil | 250 | 250 | 180 |
| | Groundwater | 350 | 350 | 250 |
| ED | Exposure Duration (yr) | | | |
| | Soil | 6 | N/A | 25 |
| | Groundwater | 30 | N/A | 25 |
| IngR | Ingestion Rate | | | |
| | Soil (mg/day) | 100 | N/A | 50 |
| | GW (L/day) | [2] 2.4 | N/A | [1] 1.2 |

| Term | | Residential | | Nonresidential (Onsite Worker) |
|---|---|---|---|---|
| | | Systemic[1] | Carcinogens[2,6] | |
| CF | Conversion Factor<br>Soil (kg/mg)<br>GW (unitless) | <br>$1 \times 10^{-6}$<br>1 | <br>$1 \times 10^{-6}$<br>1 | <br>$1 \times 10^{-6}$<br>1 |
| TR | Target Risk | N/A | $1 \times 10^{-5}$ | $1 \times 10^{-5}$ |
| $CSF_o$ | Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$ | N/A | Chemical-specific | Chemical-specific |
| $AT_c$ | Averaging Time for carcinogens (yr) | N/A | 70 | 70 |
| IFadj[4] | Ingestion Factor<br>Soil (mg-yr/kg-day)<br>GW (L-yr/kg day) | N/A | <br>55<br>[1] 1.2 | <br>15.6<br>[0.3] 0.38 |
| AIFadj[5] | Combined Age-Dependent Adjustment Factor and Ingestion Factor<br>Soil (mg-yr/kg-day)<br>GW (L-yr/kg-day) | N/A | <br>241<br>[3.23] 3.45 | N/A |
| $CSFo_k$ | TCE oral cancer slope factor for kidney cancer $(mg/kg/day)^{-1}$ | | $9.3 \times 10^{-3}$ | |
| $CSFo_l$ | TCE oral cancer slope factor for non-Hodgkin lymphoma and liver cancer $(mg/kg/day)^{-1}$ | | $3.7 \times 10^{-2}$ | |

Notes:

* * * * *

[4]The Ingestion Factor for the residential scenario is calculated using the equation $If_{[adj]}$**adj** = EDc x $IR_c/BW_c$ + $ED_a$ x $IR_a/B[w]W_a$, where $ED_c$ = 6 yr, $IR_c$ = 100 mg/day for soils and 1 L/day for groundwater, $BW_c$ = 15 kg, $ED_a$ = 24 yr, $IR_a$ = 50 mg/day for soils and [2] 2.4 L/day for groundwater, and $BW_a$ = 80 kg. The ingestion factor for the nonresidential scenario is calculated using the equation $If_{[adj]}$**adj** = ED x IR/BW, where ED = 25 yr, IR = 50 mg/day for soils and [1] 1.2 L/day for groundwater, and BW = 80 kg.

[5] The Combined Age-Dependent Adjustment Factor and Ingestion Factor (AIFadj) for the residential scenario is calculated using the equation AIFadj = $[(ADAF_{<2} \times ED_{<2}) + (ADAF_{2\text{-}6} \times ED_{2\text{-}6})] \times IR[c]_g / BW[c]_g + [(ADAF_{[>]6\text{-}16} \times ED_{[>]6\text{-}16}) + (ADAF_{>16} \times ED_{>[6\text{-}]16})] \times IR[a]_a / BW[a]_a$, where $ADAF_{<2}$ = 10, $ED_{<2}$ = 2

yr, $ADAF_{2\text{-}6}$ = 3, $ED_{2\text{-}6}$ = 4 yr, $IR[c]_s$ = 100mg/day for soils and 1 L/day for groundwater, $BW[c]_s$ = 15 kg, $ADAF_{[}_{]6\text{-}16}$ = 3, $ED_{[}_{]6\text{-}16}$ = 10 yr, $ADAF_{,16}$ = 1, $ED_{,16}$ = 14 yr, $IR[a]_a$ = 50 mg/day for soils and [2] 2.4 L/day for groundwater, and $BW[a]_a$ = 80 kg.

* * * * *

(e) The residential ingestion numeric value for lead in soil was developed using the **[Uptake Biokinetic (UBK) Model for Lead (version 0.4)]** **Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children, Windows® version (IEUBKwin v1.1 build 11) 32-bit version** developed by the EPA (U.S. Environmental Protection Agency. **([1990] February 2010)) [Uptake Biokinetic (UBK) Model for Lead (version 0.4). U.S. EPA/ECAO. August 1990,]** in lieu of the algorithms presented in subsections (a) and (b). Default input values are identified in Appendix A, Table 7. Because the **IE**UBK model is applicable only to children, the nonresidential ingestion numeric value was calculated **[according to the method developed by the Society for Environmental Geochemistry and Health (Wixson, B. G. (1991)). The Society for Environmental Geochemistry and Health (SEGH) Task Force Approach to the Assessment of Lead in Soil.** ***Trace Substances in Environmental Health.*** **(11-20), using the following equations:**

$$S = \frac{1000\left[\left(\frac{T}{G^{n}}\right) - B\right]}{\delta}$$

**]**

**using EPA's Adult Lead Methodology (ALM) in accordance with the guidance, exposure factors, equations, and spreadsheets provided in EPA's** ***Recommendations of the Technical Review Workgroup for Lead for an Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil*** **(EPA-540-R-03-001, OSWER Dir #9285.7-54, January 2003),** ***OLEM Directive 9285.6-56 "Update to the Adult Lead Methodology's Default Baseline Blood Lead Concentration and Geometric Standard Deviation Parameters"*** **(May 2017) and the associated June 14, 2017, version of the** ***Calculations of Preliminary Remediation Goals (PRGs) for Soil in Nonresidential Areas U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee*** **spreadsheets.** Table 7 identifies each of the variables **[in this equation] used to calculate the nonresidential ingestion numeric value for lead**.

* * * * *

**§ 250.307. Inhalation numeric values.**

* * * * *

(g) For a regulated substance which is a carcinogen and is a volatile compound, the numeric value for the inhalation of volatiles from groundwater shall be calculated by using the appropriate residential or nonresidential exposure assumptions from subsection (h) according to the following equations:

(1) For regulated substances not identified as a mutagen in § 250.301(b):

$$MSC = \frac{TR \times AT_c \times 365 \text{ days/year } \mathbf{x\ 24\ hr/day}}{IUR \times ET \times EF \times ED \times TF \times CF}$$

* * * * *

**§ 250.308. Soil to groundwater pathway numeric values.**

(a) A person may use the soil-to-groundwater pathway numeric values listed in Appendix A, Tables 3B and 4B, as developed using the methods contained in paragraph (1), (2) or (4), may use a concentration in soil at the site which does not produce a leachate in excess of the MSC for groundwater contained in Appendix A, Tables 1 and 2, when subjected to the Synthetic Precipitation Leaching Procedure (Method 1312 of SW-846, Test Methods for Evaluating Solid Waste, promulgated by the U. S. EPA), or may use the soil-to-groundwater pathway soil buffer criteria in subsection (b) or may use the soil-to-groundwater pathway equivalency demonstration in subsection (d).

* * * * *

(2) For organic compounds, a generic value determined not to produce a concentration in groundwater in the aquifer in excess of the MSC for groundwater as calculated by the equation in paragraph (3).

* * * * *

(ii) For soil in the zone of groundwater saturation, the **[standard]** **generic numeric value** is 1/10th of the generic value calculated by the equation in paragraph (3).

* * * * *

**§ 250.311. Evaluation of ecological receptors.**

* * * * *

(b) For purposes of determining impacts on ecological receptors, no additional evaluation is required if the remediation attains a level equal to 1/10th of the value in Appendix A, Tables 3 and 4 **or, for substances identified in § 250.305(g), 1/10th of the physical limitation identified in § 250.305(b)**, except for constituents of potential ecological concern identified in Table 8, or if the criteria in paragraph (1), (2) or (3) are met. Information that supports a determination that no additional evaluation is required shall be documented in the final report.

* * * * *

## Subchapter D. SITE-SPECIFIC STANDARD

**§ 250.402. Human health and environmental protection goals.**

* * * * *

(d) If a person is using the site-specific standard to protect ecological receptors under this subchapter or **[in accordance with]**__as a result of selecting__ § 250.311(e)__(4) when ecological receptors cannot be evaluated under the Statewide health standard__, the following shall be performed:

* * * * *

(3) Implementation of the selected remedy, which may include mitigation measures under § **[230.311(f)]]** __250.311(f)__, that is protective of the ecological receptors.

* * * * *

## § 250.404. Pathway identification and elimination.

(a) The person shall use __Department or__ Department-approved EPA or ASTM guidance to identify any potential current and future exposure pathways for both human receptors and environmental receptors identified in § 250.402 (relating to human health and environmental protection goals).

* * * * *

## § 250.409. Risk assessment report.

The risk assessment report shall conform to this subchapter and Subchapter F (relating to exposure and risk determinations), and shall include the following unless not required under § 250.405 (relating to when to perform a risk assessment):

(1) __Except when submitted in combination with a remedial investigation report, a__**[A]** risk assessment report that __uses site characterization information from an approved remedial investigation report to__ describe**[s]** the potential adverse effects, including the evaluation of ecological receptors, under both current and planned future conditions caused by the presence of regulated substances in the absence of any further control, remediation or mitigation measures.

* * * * *

## § 250.410. Cleanup plan.

* * * * *

(d) **A cleanup plan is required when an institutional or engineering control is used as a remedy to address current and future exposure pathways or exposure pathways that existed prior to submitting an NIR.**

**(e)** A cleanup plan is not required and no remedy is required to be proposed or completed if no current or future exposure pathways exist.

* * * * *

**§ 250.412. Combined reports.**

**A person does not need prior Department approval of a remedial investigation report if the remedial investigation report is submitted together with either a risk assessment report or a cleanup plan.**

## Subchapter E. SIA STANDARDS

**§ 250.503. Remediation requirements.**

* * * * *

(e) A person that changes the use of the property from nonresidential to residential, or changes the use of the property to create substantial changes in exposure conditions to contamination that existed prior to the person's reuse shall notify the Department of the changes and may be required to **amend the baseline environmental report and** implement a remediation plan to address any new imminent, direct or immediate threats to human health and the environment resulting from the changes.

* * * * *

## Subchapter F. EXPOSURE AND RISK DETERMINATIONS

**§ 250.603. Exposure factors for site-specific standards.**

(a) A risk assessment for the site-specific standard shall use site-specific exposure factors under the EPA's **[*Final Guidelines for Exposure Assessment*, 1992 (57 FR 22888—22938)]** ***Exposure Factors Handbook: 2011 Edition*, 2011 (EPA/600/R-090/052F)** or exposure factors used in the development of the Statewide health standards identified in Subchapter C (relating to Statewide health standards).

* * * * *

**§ 250.605. Sources of toxicity information.**

(a) For site-specific standards, the person shall use appropriate reference doses, reference concentrations, cancer slope factors and unit risk factors identified in Subchapter C (relating to Statewide health standards), unless the person can demonstrate that published data, available from one of the following sources, provides more current reference doses, reference concentrations, cancer slope factors or unit risk factors:

(1) Integrated Risk Information System (IRIS).

(2) United States Environmental Protection Agency, National Center for Environmental Assessment (NCEA) Provisional Peer-Reviewed Toxicity Values (PPRTV).

(3) Other sources:

(i) Health Effects Assessment Summary Tables (HEAST)

(ii) Agency for Toxic Substances and Disease Registry (ATSDR) Toxicological Profiles.

(iii) California EPA, California Cancer Potency Factors and Chronic Reference Exposure Levels.

(iv) EPA criteria documents, including drinking water criteria documents, drinking water health advisory summaries, ambient water quality criteria documents and air quality criteria documents.

**(v) EPA Human Health Benchmarks for Pesticides (HHBP)**

**(vi) EPA PPRTV Appendix**

* * * * *

## Subchapter G. DEMONSTRATION OF ATTAINMENT

**§ 250.707. Statistical tests.**

* * * * *

(b) The following statistical tests may be accepted by the Department to demonstrate attainment of the Statewide health standard. The statistical test for soil shall apply to each distinct area of contamination. The statistical test for groundwater will apply to each compliance

monitoring well. Testing shall be performed individually for each regulated substance identified in the final report site investigation as being present at the site for which a person wants relief from liability under the act. The application of a statistical method must meet the criteria in subsection (d).

(1) For soil attainment determination at each distinct area of contamination, subparagraph (i), (ii) or (iii) shall be met in addition to the attainment requirements in §§ 250.702 and 250.703 (relating to attainment requirements; and general attainment requirements for soil).

* * * * *

(ii) As applied in accordance with EPA approved methods on statistical analysis of environmental data, as identified in subsection (e), the 95% UCL of the arithmetic mean shall be at or below the **[Statewide health standard]** **MSC**.

(iii) For sites with a petroleum release where full site characterization, as defined in § 250.204(b) (relating to final report), has not been done in association with an excavation remediation, attainment of the Statewide health standard shall be demonstrated using the following procedure:

(A) For sites regulated under Chapter 245 (relating to administration of the storage tank and spill prevention program) where there is localized contamination as defined in the document "Closure Requirements for Underground Storage Tank Systems" (DEP technical document 2530-BK-DEP2008), samples shall be taken in accordance with that document.

(B) For sites not covered by clause (A), including all sites being remediated under an NIR under this chapter, samples shall be taken from the bottom and sidewalls of the excavation in a biased fashion that concentrates on areas where any remaining contamination above the Statewide health standard would most likely be found. The samples shall be taken from these suspect areas based on visual observation and the use of field instruments. If a sufficient number of samples has been collected from all suspect locations and the minimum number of samples has not been collected, or if there are no suspect areas, the locations to meet the minimum number of samples shall be based on a random procedure. The number of sample points required shall be determined in the following way:

(I) For 250 cubic yards or less of excavated contaminated soil, five samples shall be collected.

(II) For each additional 100 cubic yards of excavated contaminated soil, one sample shall be collected.

(III) For excavations involving more than 1,000 cubic yards of contaminated soil, the remediator shall identify the number and locations of samples in a confirmatory sampling plan submitted to the Department. The remediator shall obtain the Department's approval of the confirmatory sampling plan prior to conducting attainment sampling.

(IV) Where water is encountered in the excavation and no obvious contamination is observed or indicated, soil samples collected just above the soil/water interface shall be equal to or less than the applicable Statewide health MSC determined by § 250.308(a)(2)(ii) (relating to soil to groundwater pathway numeric values).

(V) Where water is encountered in the excavation and no obvious contamination is observed or indicated, a minimum of two samples shall be collected from the water surface in the excavation.

(VI) For sites where there is a release to surface soils resulting in excavation of 50 cubic yards or less of contaminated soil, samples shall be collected as described in this clause, except that two samples shall be collected.

(C) All sample results shall be equal to or less than the applicable Statewide health MSC as determined using Tables 1—4 and 6 in Appendix A.

**(D) A vapor intrusion analysis is not necessary if the requirements of § 250.707(b)(1)(iii) are met in addition to the following:**

**(I) At least one soil sample is collected on the sidewall nearest an inhabited building within the appropriate proximity distance to a potential vapor intrusion source and there are not substantially higher field instrument readings elsewhere.**

**(II) Observations of obvious contamination and the use of appropriate field screening instruments verify that contamination has not contacted or penetrated the foundation of an inhabited building.**

**(III) Groundwater contamination has not been identified as a potential vapor intrusion concern.**

* * * * *

## Appendix A

### Table 1 – Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Groundwater

| Regulated Substance | CASRN | Used Aquifers | | | | Nonuse Aquifers | |
|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| ACENAPHTHENE | 83-32-9 | [2,500] G<br>2,100 | 3,800 S | 3,800 S | 3,800 S | 3,800 S | 3,800 S |
| ACENAPHTHYLENE | 208-96-8 | [2,500] G<br>2,100 | [7,000] G<br>5,800 | 16,000 S | 16,000 S | 16,000 S | 16,000 S |
| ACEPHATE | 30560-19-1 | [84] 42 G | [390] 120 G | [8,400] G<br>4,200 | [39,000] G<br>12,000 | [84] 42 G | [390] 120 G |
| ACETALDEHYDE | 75-07-0 | 19 N | 79 N | 1,900 N | 7,900 N | 19 N | 79 N |
| ACETONE | 67-64-1 | [38,000] G<br>31,000 | [110,000] G<br>88,000 | [3,800,000 G<br>]<br>3,100,000 | [11,000,00 G<br>0]<br>8,800,000 | [380,000] G<br>310,000 | [<br>1,100,000]<br>880,000 |
| ACETONITRILE | 75-05-8 | 130 N | 530 N | 13,000 N | 53,000 N | 1,300 N | 5,300 N |
| ACETOPHENONE | 98-86-2 | [4,200] G<br>3,500 | [12,000] G<br>9,700 | [420,000] G<br>350,000 | [1,200,000 G<br>] 970,000 | [4,200] G<br>3,500 | [12,000] G<br>9,700 |
| ACETYLAMINOFLUORENE, 2- (2AAF) | 53-96-3 | [0.19] 0.17 G | [0.89] 0.72 G | [19] 17 G | [89] 72 G | [190] 170 G | [890] 720 G |
| ACROLEIN | 107-02-8 | 0.042 N | 0.18 N | 4.2 N | 18 N | 0.42 N | 1.8 N |
| ACRYLAMIDE | 79-06-1 | 0.19 N | 2.5 N | 19 N | 250 N | 0.19 N | 2.5 N |
| ACRYLIC ACID | 79-10-7 | 2.1 N | 8.8 N | 210 N | 880 N | 210 N | 880 N |
| ACRYLONITRILE | 107-13-1 | 0.72 N | 3.7 N | 72 N | 370 N | 72 N | 370 N |
| ALACHLOR | 15972-60-8 | 2 M | 2 M | 200 M | 200 M | 2 M | 2 M |
| ALDICARB | 116-06-3 | 3 M | 3 M | 300 M | 300 M | 3,000 M | 3,000 M |
| ALDICARB SULFONE | 1646-88-4 | 2 M | 2 M | 200 M | 200 M | 2 M | 2 M |
| ALDICARB SULFOXIDE | 1646-87-3 | 4 M | 4 M | 400 M | 400 M | 4 M | 4 M |
| ALDRIN | 309-00-2 | [0.043] G<br>0.038 | [0.2] 0.16 G | [4.3] 3.8 G | [20] 16 G | 20 S | 20 S |
| ALLYL ALCOHOL | 107-18-6 | 0.21 N | 0.88 N | 21 N | 88 N | 21 N | 88 N |
| AMETRYN | 834-12-8 | 60 H | 60 H | 6,000 H | 6,000 H | 60 H | 60 |
| AMINOBIPHENYL, 4- | 92-67-1 | [0.035] G<br>0.031 | [0.16] 0.13 G | [3.5] 3.1 G | [16] 13 G | [35] 31 G | [160] 130 G |
| AMITROLE | 61-82-5 | [0.78] 0.69 G | [3.6] 2.9 G | [78] 69 G | [360] 290 G | [780] 690 G | [3,600] G<br>2,900 |
| AMMONIA | 7664-41-7 | 30,000 H | 30,000 H | 3,000,000 H | 3,000,000 H | 30,000 H | 30,000 H |
| AMMONIUM SULFAMATE | 7773-06-0 | 2,000 H | 2,000 H | 200,000 H | 200,000 H | 2,000 H | 2,000 H |
| ANILINE | 62-53-3 | 2.1 N | 8.8 N | 210 N | 880 N | 2.1 N | 8.8 N |
| ANTHRACENE | 120-12-7 | 66 S | 66 S | 66 S | 66 S | 66 S | 66 S |

All concentrations in µg/L
R = Residential
NR = Non-Residential
M = Maximum Contaminant Level
H = Lifetime health advisory level
G = Ingestion
N = Inhalation
S = Aqueous solubility cap

THMs – The values listed for trihalomethanes (THMs) are the total for all THMs combined.
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| Regulated Substance | CASRN | Used Aquifers | | | | Nonuse Aquifers | |
|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| ATRAZINE | 1912-24-9 | 3 M | 3 M | 300 M | 300 M | 3 M | 3 M |
| AZINPHOS-METHYL (GUTHION) | 86-50-0 | [130] 52 G | [350] 150 G | [13,000] 5,200 G | [32,000] 15,000 [S] G | [130] 52 G | [350] 150 G |
| BAYGON (PROPOXUR) | 114-26-1 | 3 H | 3 H | 300 H | 300 H | 3,000 H | 3,000 H |
| BENOMYL | 17804-35-2 | [2,000] 270 [S] G | [2,000] 1,100 [S] G | 2,000 S | 2,000 S | [2,000] 270 [S] G | [2,000] 1,100 [S] G |
| BENTAZON | 25057-89-0 | 200 H | 200 H | 20,000 H | 20,000 H | 200 H | 200 |
| BENZENE | 71-43-2 | 5 M | 5 M | 500 M | 500 M | 500 M | 500 M |
| BENZIDINE | 92-87-5 | [0.00098] 0.00092 G | [0.015] 0.012 G | [0.098] 0.092 G | [1.5] 1.2 G | [0.98] 0.92 G | [15] 12 G |
| BENZO[A]ANTHRACENE | 56-55-3 | [0.32] 0.3 G | [4.9] 3.9 G | 11 S | 11 S | 11 S | 11 S |
| BENZO[A]PYRENE | 50-32-8 | 0.2 M | 0.2 M | 3.8 S | 3.8 S | 3.8 S | 3.8 S |
| BENZO[B]FLUORANTHENE | 205-99-2 | [0.19] 0.18 G | 1.2 S | 1.2 S | 1.2 S | 1.2 S | 1.2 S |
| BENZO[GHI]PERYLENE | 191-24-2 | 0.26 S | 0.26 S | 0.26 S | 0.26 S | 0.26 S | 0.26 S |
| BENZO[K]FLUORANTHENE | 207-08-9 | [0.19] 0.18 G | 0.55 S | 0.55 S | 0.55 S | 0.55 S | 0.55 S |
| BENZOIC ACID | 65-85-0 | [170,000] 140,000 G | [470,000] 390,000 G | 2,700,000 S | 2,700,000 S | [170,000] 140,000 G | [470,000] 390,000 G |
| BENZOTRICHLORIDE | 98-07-7 | [0.056] 0.05 G | [0.26] 0.21 G | [5.6] 5 G | [26] 21 G | [56] 5 G | [260] 21 G |
| BENZYL ALCOHOL | 100-51-6 | [4,200] 3,500 G | [12,000] 9,700 G | [420,000] 350,000 G | [1,200,000] 970,000 G | [4,200] 3,500 G | [12,000] 9,700 G |
| BENZYL CHLORIDE | 100-44-7 | 1 N | 5.1 N | 100 N | 510 N | 100 N | 510 N |
| BETA PROPIOLACTONE | 57-57-8 | 0.012 N | 0.063 N | 1.2 N | 6.3 N | 0.12 N | 0.63 N |
| BHC, ALPHA- | 319-84-6 | [0.12] 0.1 G | [0.54] 0.43 G | [12] 10 G | [54] 43 G | [120] 100 G | [540] 430 |
| BHC, BETA- | 319-85-7 | [0.41] 0.36 G | [1.9] 1.5 G | [41] 36 G | 100 S | 100 S | 100 S |
| BHC, GAMMA (LINDANE) | 58-89-9 | 0.2 M | 0.2 M | 20 M | 20 M | 200 M | 200 M |
| BIPHENYL, 1,1- | 92-52-4 | [91] 0.84 [G] N | [430] 3.5 [G] N | [7,200] 84 [S] N | [7,200] 350 [S] N | [7,200] 84 [S] N | [7,200] 350 [S] N |
| BIS(2-CHLOROETHOXY)METHANE | 111-91-1 | [130] 100 G | [350] 290 G | [13,000] 10,000 G | [35,000] 29,000 G | [130] 100 G | [350] 290 G |
| BIS(2-CHLOROETHYL)ETHER | 111-44-4 | 0.15 N | 0.76 N | 15 N | 76 N | 15 N | 76 N |
| BIS(2-CHLORO-ISOPROPYL)ETHER | 108-60-1 | 300 H | 300 H | 30,000 H | 30,000 H | 30,000 H | 30,000 H |

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| Regulated Substance | CASRN | Used Aquifers | | | | Nonuse Aquifers | |
|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| BIS(CHLOROMETHYL)ETHER | 542-88-1 | 0.00079 N | 0.004 N | 0.079 N | 0.4 N | 0.079 N | 0.4 N |
| BIS[2-ETHYLHEXYL] PHTHALATE | 117-81-7 | 6 M | 6 M | 290 S | 290 S | 290 S | 290 S |
| BISPHENOL A | 80-05-7 | [2,100] 1,700 G | [5,800] 4,900 G | 120,000 S | 120,000 S | 120,000 S | 120,000 S |
| BROMACIL | 314-40-9 | 70 H | 70 H | 7,000 H | 7,000 H | 70 H | 70 H |
| **BROMOBENZENE** | **108-86-1** | **0.06 H** | **0.06 H** | **6 H** | **6 H** | **0.06 H** | **0.06 H** |
| BROMOCHLOROMETHANE | 74-97-5 | 90 H | 90 H | 9,000 H | 9,000 H | 90 H | 90 H |
| BROMODICHLOROMETHANE (THM) | 75-27-4 | 80 M | 80 M | 8,000 M | 8,000 M | 80 M | 80 |
| BROMOMETHANE | 74-83-9 | 10 H | 10 H | 1,000 H | 1,000 H | 1,000 H | 1,000 |
| BROMOXYNIL | 1689-84-5 | [830] 6.3 G | [2,300] 26 G | [83,000] 630 G | [130,000] 2,600 [S] G | [830] 6.3 G | [2,300] 26 G |
| BROMOXYNIL OCTANOATE | 1689-99-2 | [80] 6.3 [S] G | [80] 26 [S] G | 80 S | 80 S | 80 S | 80 S |
| BUTADIENE, 1,3- | 106-99-0 | [0.21] 1.1 G | [1] 4.5 G | [21] 110 G | [100] 450 G | [21] 110 G | [100] 450 G |
| BUTYL ALCOHOL, N- | 71-36-3 | [4,200] 3,500 G | [12,000] 9,700 G | [420,000] 350,000 G | [1,200,000] 970,000 G | [42,000] 35,000 G | [120,000] 97,000 G |
| BUTYLATE | 2008-41-5 | 400 H | 400 H | 40,000 H | 40,000 H | 400 H | 400 H |
| BUTYLBENZENE, N- | 104-51-8 | [2,100] 1,700 G | [5,800] 4,900 G | 15,000 S | 15,000 S | [2,100] 1,700 G | [5,800] 4,900 G |
| BUTYLBENZENE, SEC- | 135-98-8 | [4,200] 3,500 G | [12,000] 9,700 G | 17,000 S | 17,000 S | [4,200] 3,500 G | [12,000] 9,700 G |
| BUTYLBENZENE, TERT- | 98-06-6 | [4,200] 3,500 G | [12,000] 9,700 G | 30,000 S | 30,000 S | [4,200] 3,500 G | [12,000] 9,700 G |
| BUTYLBENZYL PHTHALATE | 85-68-7 | [380] 340 G | [1,800] 1,400 G | 2,700 S | 2,700 S | 2,700 S | 2,700 |
| CAPTAN | 133-06-2 | [320] 280 G | 500 S | 500 S | 500 S | 500 S | 500 S |
| CARBARYL | 63-25-2 | [4,200] 3,500 G | [12,000] 9,700 G | 120,000 S | 120,000 S | 120,000 S | 120,000 S |
| CARBAZOLE | 86-74-8 | [37] 33 G | [170] 140 G | 1,200 S | 1,200 S | [37] 33 [S] G | [170] 140 [S] G |
| CARBOFURAN | 1563-66-2 | 40 M | 40 M | 4,000 M | 4,000 M | 40 M | 40 M |
| CARBON DISULFIDE | 75-15-0 | 1,500 N | 6,200 N | 150,000 N | 620,000 N | 1,500 N | 6,200 N |

All concentrations in µg/L
R = Residential
NR = Non-Residential
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H = Lifetime health advisory level
G = Ingestion
N = Inhalation
S = Aqueous solubility cap

THMs – The values listed for trihalomethanes (THMs) are the total for all THMs combined.
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| Regulated Substance | CASRN | Used Aquifers | | | | Nonuse Aquifers | |
|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| CARBON TETRACHLORIDE | 56-23-5 | 5 M | 5 M | 500 M | 500 M | 50 M | 50 M |
| CARBOXIN | 5234-68-4 | 700 H | 700 H | 70,000 H | 70,000 H | 700 H | 700 H |
| CHLORAMBEN | 133-90-4 | 100 H | 100 H | 10,000 H | 10,000 H | 100 H | 100 H |
| CHLORDANE | 57-74-9 | 2 M | 2 M | 56 S | 56 S | 56 S | 56 S |
| CHLORO-1,1-DIFLUOROETHANE, 1- | 75-68-3 | 110,000 N | 440,000 N | 1,400,000 S | 1,400,000 S | 110,000 N | 440,000 N |
| CHLORO-1-PROPENE, 3- (ALLYL CHLORIDE) | 107-05-1 | 2.1 N | 8.8 N | 210 N | 880 N | 210 N | 880 N |
| CHLOROACETALDEHYDE | 107-20-0 | 2.4 G | [11] 10 G | 240 G | [1,100] 1,000 G | 2.4 G | [11] 10 G |
| [CHLOROACETOPHENONE, 2-] | [532-27-4] | [1.3] [G] | [3.5] [G] | [130] [G] | [350] [G] | [1,300] [G] | [3,500] [G] |
| CHLOROANILINE, P- | 106-47-8 | [3.7] 3.3 G | [17] 14 G | [370] 330 G | [1,700] 1,400 G | [3.7] 3.3 G | [17] 14 G |
| CHLOROBENZENE | 108-90-7 | 100 M | 100 M | 10,000 M | 10,000 M | 10,000 M | 10,000 M |
| CHLOROBENZILATE | 510-15-6 | [6.6] 5.9 G | [31] 25 G | [660] 590 G | [3,100] 2,500 G | [6,600] 5,900 G | 13,000 S |
| CHLOROBUTANE, 1- | 109-69-3 | [1,700] 1,400 G | [4,700] 3,900 G | [170,000] 140,000 G | [470,000] 390,000 G | [1,700] 1,400 G | [4,700] 3,900 G |
| CHLORODIBROMOMETHANE (THM) | 124-48-1 | 80 M | 80 M | 8,000 M | 8,000 M | 8,000 M | 8,000 M |
| CHLORODIFLUOROMETHANE | 75-45-6 | 110,000 N | 440,000 N | 2,900,000 S | 2,900,000 S | 110,000 N | 440,000 N |
| CHLOROETHANE | 75-00-3 | [250] 21,000 [G] N | [1,200] 88,000 [G] N | [25,000] 2,100,000 [G] N | [20,000] 5,700,000 [G] S | [25,000] 2,100,000 [G] N | [120,000] 5,700,000 [G] S |
| CHLOROFORM (THM) | 67-66-3 | 80 M | 80 M | 8,000 M | 8,000 M | 800 M | 800 M |
| CHLORONAPHTHALENE, 2- | 91-58-7 | [3,300] 2,800 G | [9,300] 7,800 G | 12,000 S | 12,000 S | [3,300] 2,800 G | [9,300] 7,800 G |
| CHLORONITROBENZENE, P- | 100-00-5 | [42] 4.2 [G] N | [120] 18 [G] N | [4,200] 420 [G] N | [12,000] 1,800 [G] N | [42] 4.2 [G] N | [120] 18 [G] N |
| CHLOROPHENOL, 2- | 95-57-8 | 40 H | 40 H | 4,000 H | 4,000 H | 40 H | 40 H |
| CHLOROPRENE | 126-99-8 | 0.16 N | 0.83 N | 16 N | 83 N | 16 N | 83 N |
| CHLOROPROPANE, 2- | 75-29-6 | 210 N | 880 N | 21,000 N | 88,000 N | 210 N | 880 N |

All concentrations in µg/L
R = Residential
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G = Ingestion
N = Inhalation
S = Aqueous solubility cap

THMs – The values listed for trihalomethanes (THMs) are the total for all THMs combined.
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|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| CHLOROTHALONIL | 1897-45-6 | [240] 38 G | [600] 160 [S] G | 600 S | 600 S | [240] 38 G | [600] 160 [S] G |
| CHLOROTOLUENE, O- | 95-49-8 | 100 H | 100 H | 10,000 H | 10,000 H | 100 H | 100 H |
| CHLOROTOLUENE, P- | 106-43-4 | 100 H | 100 H | 10,000 H | 10,000 H | 100 H | 100 H |
| CHLORPYRIFOS | 2921-88-2 | 2 H | 2 H | 200 H | 200 H | 2 H | 2 H |
| CHLORSULFURON | 64902-72-3 | [2,100] 690 G | [5,800] 1,900 G | [190,000] 69,000 [S] G | 190,000 [S] G | [2,100] 690 G | [5,800] 1,900 G |
| CHLORTHAL-DIMETHYL (DACTHAL) (DCPA) | 1861-32-1 | 70 H | 70 H | 500 S | 500 S | 500 S | 500 S |
| CHRYSENE | 218-01-9 | [1.9] 1.8 G | 1.9 S | 1.9 S | 1.9 S | 1.9 S | 1.9 S |
| CRESOL(S) | 1319-77-3 | 1,300 N | 5,300 N | 130,000 N | 530,000 N | 130,000 N | 530,000 N |
| CRESOL, DINITRO-O-,4,6- | 534-52-1 | [3.3] 2.8 G | [9.3] 7.8 G | [330] 280 G | [930] 780 G | [3,300] 280 G | [9,300] 780 G |
| CRESOL, O- (METHYLPHENOL, 2-) | 95-48-7 | [2,100] 1,700 G | [5,800] 4,900 G | [210,000] 170,000 G | [580,000] 490,000 G | [210,000] 170,000 G | [580,000] 490,000 G |
| CRESOL, M (METHYLPHENOL, 3-) | 108-39-4 | [2,100] 1,700 G | [5,800] 4,900 G | [210,000] 170,000 G | [580,000] 490,000 G | [2,100,000 ] 1,700,000 G | 2,500,000 S |
| CRESOL, P (METHYLPHENOL, 4-) | 106-44-5 | [210] 170 G | [580] 490 G | [21,000] 17,000 G | [58,000] 49,000 G | [210,000] 170,000 G | [580,000] 490,000 G |
| CRESOL, P-CHLORO-M- | 59-50-7 | [4,200] 3,500 G | [12,000] 9,700 G | [420,000] 350,000 G | [1,200,000 ] 970,000 G | [4,200] 3,500 G | [12,000] 9,700 G |
| CROTONALDEHYDE | 4170-30-3 | [0.38] 0.34 G | [1.8] 1.4 G | [38] 34 G | [180] 140 G | [38] 34 G | [180] 140 G |
| CROTONALDEHYDE, TRANS- | 123-73-9 | [0.38] 0.34 G | [1.8] 1.4 G | [38] 34 G | [180] 140 G | [38] 34 G | [180] 140 G |
| CUMENE (ISOPROPYL BENZENE) | 98-82-8 | 840 N | 3,500 N | 50,000 S | 50,000 S | 50,000 S | 50,000 S |
| CYANAZINE | 21725-46-2 | 1 H | 1 H | 100 H | 100 H | 1 H | 1 |
| CYCLOHEXANE | 110-82-7 | 13,000 N | 53,000 N | 55,000 S | 55,000 S | 13,000 N | 53,000 N |
| CYCLOHEXANONE | 108-94-1 | 1,500 N | 6,200 N | 150,000 N | 620,000 N | 1,500 N | 6,200 N |
| CYFLUTHRIN | 68359-37-5 | 1 S | 1 S | 1 S | 1 S | 1 S | 1 S |
| CYROMAZINE | 66215-27-8 | [310] 17,000 G | [880] 49,000 G | [31,000] 1,700,000 G | [88,000] 4,900,000 G | [310] 17,000 G | [880] 49,000 G |
| DDD, 4,4'- | 72-54-8 | [3] 2.7 G | [14] 11 G | 160 S | 160 S | 160 S | 160 S |
| DDE, 4,4'- | 72-55-9 | [2.1] 1.9 G | [10] 8 G | 40 S | 40 S | 40 S | 40 S |
| DDT, 4,4'- | 50-29-3 | [2.1] 1.9 G | 5.5 S | 5.5 S | 5.5 S | 5.5 S | 5.5 S |

All concentrations in µg/L M = Maximum Contaminant Level N = Inhalation
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| Regulated Substance | CASRN | Used Aquifers | | | | Nonuse Aquifers | |
|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| DI(2-ETHYLHEXYL)ADIPATE | 103-23-1 | 400 M | 400 M | 40,000 M | 40,000 M | 200,000 S | 200,000 S |
| DIALLATE | 2303-16-4 | [12] 11 G | [56] 45 G | [1,200] 1,100 G | [5,600] 4,500 G | [12,000] 11,000 G | 40,000 S |
| DIAMINOTOLUENE, 2,4- | 95-80-7 | [0.18] 0.16 G | [0.85] 0.68 G | [18] 16 G | [85] 68 G | [180] 160 G | [850] 680 G |
| DIAZINON | 333-41-5 | 1 H | 1 H | 100 H | 100 H | 1 H | 1 H |
| DIBENZO[A,H]ANTHRACENE | 53-70-3 | [0.055] 0.052 G | 0.6 S | 0.6 S | 0.6 S | 0.6 S | 0.6 S |
| DIBENZOFURAN | 132-64-9 | [42] 35 G | [120] 97 G | [4,200] 3,500 G | 4,500 S | [4,500] 3,500 [S] G | 4,500 |
| DIBROMO-3-CHLOROPROPANE, 1,2- | 96-12-8 | 0.2 M | 0.2 M | 20 M | 20 M | 20 M | 20 M |
| DIBROMOBENZENE, 1,4- | 106-37-6 | [420] 350 G | [1,200] 970 G | 20,000 S | 20,000 S | [420] 350 G | [1,200] 970 G |
| DIBROMOETHANE, 1,2- (ETHYLENE DIBROMIDE) | 106-93-4 | 0.05 M | 0.05 M | 5 M | 5 M | 5 M | 5 M |
| DIBROMOMETHANE | 74-95-3 | 8.4 N | 35 N | 840 N | 3,500 N | 840 N | 3,500 N |
| DIBUTYL PHTHALATE, N- | 84-74-2 | [4,200] 3,500 G | [12,000] 9,700 G | [400,000] 350,000 [S] G | 400,000 S | 400,000 S | 400,000 S |
| DICAMBA | 1918-00-9 | 4,000 H | 4,000 H | 400,000 H | 400,000 H | 4,000 H | 4,000 H |
| DICHLOROACETIC ACID (HAA) | 7[6]9-43-6 | 60 M | 60 M | 6,000 M | 6,000 M | 60 M | 60 M |
| DICHLORO-2-BUTENE, 1,4- | 764-41-0 | 0.012 N | 0.06 N | 1.2 N | 6 N | 0.012 N | 0.06 N |
| DICHLORO-2-BUTENE, TRANS-1,4- | 110-57-6 | 0.012 N | 0.06 N | 1.2 N | 6 N | 0.012 N | 0.06 N |
| DICHLOROBENZENE, 1,2- | 95-50-1 | 600 M | 600 M | 60,000 M | 60,000 M | 60,000 M | 60,000 M |
| DICHLOROBENZENE, 1,3- | 541-73-1 | 600 H | 600 H | 60,000 H | 60,000 H | 60,000 H | 60,000 H |
| DICHLOROBENZENE, P- | 106-46-7 | 75 M | 75 M | 7,500 M | 7,500 M | 7,500 M | 7,500 M |
| DICHLOROBENZIDINE, 3,3'- | 91-94-1 | [1.6] 1.4 G | [7.6] 6 G | [160] 140 G | [760] 600 G | [1,600] 1,400 G | 3,100 |
| DICHLORODIFLUOROMETHANE (FREON 12) | 75-71-8 | 1,000 H | 1,000 H | 100,000 H | 100,000 H | 100,000 H | 100,000 H |
| DICHLOROETHANE, 1,1- | 75-34-3 | 31 N | 160 N | 3,100 N | 16,000 N | 310 N | 1,600 N |
| DICHLOROETHANE, 1,2- | 107-06-2 | 5 M | 5 M | 500 M | 500 M | 50 M | 50 M |
| DICHLOROETHYLENE, 1,1- | 75-35-4 | 7 M | 7 M | 700 M | 700 M | 70 M | 70 M |
| DICHLOROETHYLENE, CIS-1,2- | 156-59-2 | 70 M | 70 M | 7,000 M | 7,000 M | 700 M | 700 M |
| DICHLOROETHYLENE, TRANS-1,2- | 156-60-5 | 100 M | 100 M | 10,000 M | 10,000 M | 1,000 M | 1,000 M |
| DICHLOROMETHANE (METHYLENE CHLORIDE) | 75-09-2 | 5 M | 5 M | 500 M | 500 M | 500 M | 500 M |

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| Regulated Substance | CASRN | Used Aquifers | | | | Nonuse Aquifers | |
|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| DICHLOROPHENOL, 2,4- | 120-83-2 | 20 H | 20 H | 2,000 H | 2,000 H | 20,000 H | 20,000 H |
| DICHLOROPHENOXYACETIC ACID, 2,4- (2,4-D) | 94-75-7 | 70 M | 70 M | 7,000 M | 7,000 M | 70,000 M | 70,000 M |
| DICHLOROPROPANE, 1,2- | 78-87-5 | 5 M | 5 M | 500 M | 500 M | 50 M | 50 M |
| DICHLOROPROPENE, 1,3- | 542-75-6 | [7.3] 6.5 G | [34] 27 G | [730] 650 G | [3,400] 2,700 G | [730] 650 G | [3,400] 2,700 G |
| DICHLOROPROPIONIC ACID, 2,2- (DALAPON) | 75-99-0 | 200 M | 200 M | 20,000 M | 20,000 M | 20,000 M | 20,000 M |
| DICHLORVOS | 62-73-7 | [2.5] 2.2 G | [12] 9.4 G | [250] 220 G | [1,200] 940 G | [2.5] 2.2 G | [12] 9.4 G |
| DICYCLOPENTADIENE | 77-73-6 | 0.63 N | 2.6 N | 63 N | 260 N | 0.63 N | 2.6 |
| DIELDRIN | 60-57-1 | [0.046] 0.041 G | [0.21] 0.17 G | [4.6] 4.1 G | [21] 17 G | [46] 41 G | 170 S |
| DIETHYL PHTHALATE | 84-66-2 | [33,000] 28,000 G | [93,000] 78,000 G | 1,100,000 S | 1,100,000 S | 1,100,000 S | 1,100,000 S |
| DIFLUBENZURON | 35367-38-5 | 200 S | 200 S | 200 S | 200 S | 200 S | 200 S |
| DIISOPROPYL METHYLPHOSPHONATE | 1445-75-6 | 600 H | 600 H | 60,000 H | 60,000 H | 600 H | 600 H |
| DIMETHOATE | 60-51-5 | [8.3] 76 G | [23] 210 G | [830] 7,600 G | [2,300] 21,000 G | [8,300] 76,000 G | [23,000] 210,000 G |
| DIMETHOXYBENZIDINE, 3,3- | 119-90-4 | [0.46] 0.41 G | [2] 1.7 G | [46] 41 G | [210] 170 G | [460] 410 G | [2,100] 1,700 G |
| DIMETHRIN | 70-38-2 | 36 S | 36 S | 36 S | 36 S | 36 S | 36 S |
| DIMETHYLAMINOAZOBENZENE, P- | 60-11-7 | [0.16] 0.14 G | [0.74] 0.59 G | [16] 14 G | [74] 59 G | [160] 140 G | [740] 590 G |
| DIMETHYLANILINE, N,N- | 121-69-7 | [83] 24 G | [230] 100 G | [8,300] 2,400 G | [23,000] 10,000 G | [8,300] 2,400 G | [23,000] 10,000 G |
| DIMETHYLBENZIDINE, 3,3- | 119-93-7 | [0.066] 0.059 G | [0.31] 0.25 G | [6.6] 5.9 G | [31] 25 G | [66] 59 G | [310] 250 G |
| DIMETHYL METHYLPHOSPHONATE | 756-79-6 | 100 H | 100 H | 10,000 H | 10,000 H | 100 H | 100 |
| DIMETHYLPHENOL, 2,4- | 105-67-9 | [830] 690 G | [2,300] 1,900 G | [83,000] 69,000 G | [230,000] 190,000 G | [830,000] 690,000 G | [2,300,000 ] 1,900,000 |
| DINITROBENZENE, 1,3- | 99-65-0 | 1 H | 1 H | 100 H | 100 H | 1,000 H | 1,000 H |
| DINITROPHENOL, 2,4- | 51-28-5 | [83] 69 G | [230] 190 G | [8,300] 6,900 G | [23,000] 19,000 G | [83,000] 69,000 G | [230,000] 190,000 G |
| DINITROTOLUENE, 2,4- | 121-14-2 | [2.4] 2.1 G | [11] 8.8 G | [240] 210 G | [1,100] 880 G | [2,400] 2,100 G | [11,000] 8,800 G |

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| Regulated Substance | CASRN | Used Aquifers | | | | Nonuse Aquifers | |
|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| DINITROTOLUENE, 2,6- (2,6-DNT) | 606-20-2 | [0.49] 0.43 G | [2] 1.8 G | [49] 43 G | [230] 180 G | [490] 430 G | [2,300] 1,800 G |
| DINOSEB | 88-85-7 | 7 M | 7 M | 700 M | 700 M | 7,000 M | 7,000 M |
| DIOXANE, 1,4- | 123-91-1 | [6.4] 6.5 [N] G | [32] 27 [N] G | [640] 650 [N] G | [3,200] 2,700 [N] G | [64] 65 [N] G | [320] 270 [N] G |
| DIPHENAMID | 957-51-7 | 200 H | 200 H | 20,000 H | 20,000 H | 200 H | 200 H |
| DIPHENYLAMINE | 122-39-4 | [1,000] 3,500 G | [2,900] 9,700 G | [100,000] 300,000 [G] S | [290,000] 300,000 [G] S | 300,000 S | 300,000 |
| DIPHENYLHYDRAZINE, 1,2- | 122-66-7 | [0.91] 0.22 [G] N | [4.3] 1.1 [G] N | [91] 22 [G] N | [250] 110 [S] N | [250] 22 [S] N | [250] 110 [S] N |
| DIQUAT | 85-00-7 | 20 M | 20 M | 2,000 M | 2,000 M | 20 M | 20 M |
| DISULFOTON | 298-04-4 | 0.7 H | 0.7 H | 70 H | 70 H | 700 H | 700 H |
| DITHIANE, 1,4- | 505-29-3 | 80 H | 80 H | 8,000 H | 8,000 H | 80 H | 80 H |
| DIURON | 330-54-1 | [83] 69 G | [230] 190 G | [8,300] 6,900 G | [23,000] 19,000 G | [83] 69 G | [230] 190 G |
| ENDOSULFAN | 115-29-7 | [250] 210 G | 480 S | 480 S | 480 S | 480 S | 480 S |
| ENDOSULFAN I (APLHA) | 959-98-8 | [250] 210 G | 500 S | 500 S | 500 S | [250] 210 G | 500 S |
| ENDOSULFAN II (BETA) | 33213-65-9 | [250] 210 G | 450 S | 450 S | 450 S | [250] 210 G | 450 S |
| ENDOSULFAN SULFATE | 1031-07-8 | 120 S | 120 S | 120 S | 120 S | 120 S | 120 S |
| ENDOTHALL | 145-73-3 | 100 M | 100 M | 10,000 M | 10,000 M | 100 M | 100 M |
| ENDRIN | 72-20-8 | 2 M | 2 M | 200 M | 200 M | 2 M | 2 M |
| EPICHLOROHYDRIN | 106-89-8 | 2.1 N | 8.8 N | 210 N | 880 N | 210 N | 880 N |
| ETHEPHON | 16672-87-0 | [210] 170 G | [580] 490 G | [21,000] 17,000 G | [58,000] 49,000 G | [210] 170 G | [580] 490 |
| ETHION | 563-12-2 | [21] 17 G | [58] 49 G | 850 S | 850 S | [21] 17 G | [58] 49 G |
| ETHOXYETHANOL, 2- (EGEE) | 110-80-5 | 420 N | 1,800 N | 42,000 N | 180,000 N | 42,000 N | 180,000 N |
| ETHYL ACETATE | 141-78-6 | 150 [G] N | 620 [G] N | [150,000] 15,000 [G] N | 62,000 [G] N | [150,000] 15,000 [G] N | 62,000 [G] N |

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| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| ETHYL ACRYLATE | 140-88-5 | [15] 14 G | [70] 57 [N] G | [1,500] G 1,400 | [7,000] [N] 5,700 G | [1,500] G 1,400 | [7,000] [N] 5,700 G |
| ETHYL BENZENE | 100-41-4 | 700 M | 700 M | 70,000 M | 70,000 M | 70,000 M | 70,000 M |
| ETHYL DIPROPYLTHIOCARBAMATE, S- (EPTC) | 759-94-4 | [1,000] G 1,700 | [2,900] G 4,900 | [100,000] G 170,000 | [290,000] [G] 370,000 S | [1,000] G 1,700 | [2,900] G 4,900 |
| ETHYL ETHER | 60-29-7 | [8,300] G 6,900 | [23,000] G 19,000 | [830,000] G 690,000 | [2,300,000 G] 1,900,000 | [8,300] G 6,900 | [23,000] G 19,000 |
| ETHYL METHACRYLATE | 97-63-2 | 630 N | 2,600 N | 63,000 N | 260,000 N | 630 N | 2,600 N |
| ETHYLENE CHLORHYDRIN | 107-07-3 | [830] 690 G | [2,300] G 1,900 | [83,000] G 69,000 | [230,000] G 190,000 | [830] 690 G | [2,300] G 1,900 |
| ETHYLENE GLYCOL | 107-21-1 | 14,000 H | 14,000 H | 1,400,000 H | 1,400,000 H | 1,400,000 H | 1,400,000 H |
| ETHYLENE THIOUREA (ETU) | 96-45-7 | [3.3] 2.8 G | [9.3] 7.8 G | [330] 280 G | [930] 780 G | [3,300] G 2,800 | [9,300] G 7,800 |
| ETHYLP-NITROPHENYL PHENYLPHOSPHOROTHIOATE | 2104-64-5 | [0.42] 0.35 G | [1] 0.97 G | [42] 35 G | [120] 97 G | [0.42] 0.35 G | [1.2] 0.97 G |
| FENAMIPHOS | 22224-92-6 | 0.7 H | 0.7 H | 70 H | 70 H | 0.7 H | 0.7 H |
| FENVALERATE (PYDRIN) | 51630-58-1 | 85 S | 85 S | 85 S | 85 S | 85 S | 85 S |
| FLUOMETURON | 2164-17-2 | 90 H | 90 H | 9,000 H | 9,000 H | 90 H | 90 H |
| FLUORANTHENE | 206-44-0 | 260 S | 260 S | 260 S | 260 S | 260 S | 260 S |
| FLUORENE | 86-73-7 | [1,700] G 1,400 | 1,900 S | 1,900 S | 1,900 S | 1,900 S | 1,900 S |
| FLUOROTRICHLOROMETHANE (FREON 11) | 75-69-4 | 2,000 H | 2,000 H | 200,000 H | 200,000 H | 200,000 H | 200,000 H |
| FONOFOS | 944-22-9 | 10 H | 10 H | 1,000 H | 1,000 H | 10 H | 10 H |
| FORMALDEHYDE | 50-00-0 | 1,000 H | 1,000 H | 100,000 H | 100,000 H | 100,000 H | 100,000 |
| FORMIC ACID | 64-18-6 | 0.63 N | 2.6 N | 63 N | 260 N | 6.3 N | 26 N |
| FOSETYL-AL | 39148-24-8 | [130,000] G 87,000 | [350,000] G 240,000 | [13,000,000] G 8,700,000 | [35,000,000] G 24,000,000 | [130,000] G 87,000 | [350,000] G 240,000 |
| FURAN | 110-00-9 | [42] 35 G | [120] 97 G | [4,200] G 3,500 | [12,000] G 9,700 | [4,200] G 3,500 | [12,000] G 9,700 |

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| | | R | NR | R | NR | R | NR |
| FURFURAL | 98-01-1 | [110] 19 [N] G | [350] 78 G | [11,000] 1,900 [N] G | [35,000] 7,800 G | [110] 19 [N] G | [350] 78 G |
| GLYPHOSATE | 1071-83-6 | 700 M | 700 M | 70,000 M | 70,000 M | 700 M | 700 M |
| HEPTACHLOR | 76-44-8 | 0.4 M | 0.4 M | 40 M | 40 M | 180 S | 180 S |
| HEPTACHLOR EPOXIDE | 1024-57-3 | 0.2 M | 0.2 M | 20 M | 20 M | 200 M | 200 M |
| HEXACHLOROBENZENE | 118-74-1 | 1 M | 1 M | 6 S | 6 S | 6 S | 6 S |
| HEXACHLOROBUTADIENE | 87-68-3 | [9.4] 8.4 G | [44] 35 G | [940] 840 G | 2,900 S | 2,900 S | 2,900 |
| HEXACHLOROCYCLOPENTADIENE | 77-47-4 | 50 M | 50 M | 1,800 S | 1,800 S | 1,800 S | 1,800 S |
| HEXACHLOROETHANE | 67-72-1 | 1 H | 1 H | 100 H | 100 H | 100 H | 100 H |
| HEXANE | 110-54-3 | 1,500 N | [6,200] 5,800 [N] G | 9,500 S | 9,500 S | 1,500 N | [6,200] 5,800 [N] G |
| HEXAZINONE | 51235-04-2 | 400 H | 400 H | 40,000 H | 40,000 H | 400 H | 400 H |
| HEXYTHIAZOX (SAVEY) | 78587-05-0 | 500 S | 500 S | 500 S | 500 S | 500 S | 500 S |
| HMX | 2691-41-0 | 400 H | 400 H | 5,000 S | 5,000 S | 400 H | 400 H |
| HYDRAZINE/HYDRAZINE SULFATE | 302-01-2 | 0.01 N | 0.051 N | 1 N | 5.1 N | 0.1 N | 0.51 N |
| HYDROQUINONE | 123-31-9 | [12] 11 G | [57] 45 G | [1,200] 1,100 G | [5,700] 4,500 G | [12,000] 11,000 G | [57,000] 45,000 G |
| INDENO[1,2,3-CD]PYRENE | 193-39-5 | [0.19] 0.18 G | [2.8] 2.3 G | [19] 18 G | 62 S | 62 S | 62 S |
| IPRODIONE | 36734-19-7 | [1,700] 15 G | [4,700] 62 G | [13,000] 1,500 [S] G | [13,000] 6,200 [S] G | [1,700] 15 G | [4,700] 62 G |
| ISOBUTYL ALCOHOL | 78-83-1 | [13,000] 10,000 G | [35,000] 29,000 G | [1,300,000] 1,000,000 G | [3,500,000] 2,900,000 G | [1,300,000] 1,000,000 G | [3,500,000] 2,900,000 G |
| ISOPHORONE | 78-59-1 | 100 H | 100 H | 10,000 H | 10,000 H | 100,000 H | 100,000 H |
| ISOPROPYL METHYLPHOSPHONATE | 1832-54-8 | 700 H | 700 H | 70,000 H | 70,000 H | 700 H | 700 H |
| KEPONE | 143-50-0 | [0.073] 0.065 G | [0.34] 0.27 G | [7.3] 6.5 G | [34] 27 G | [73] 65 G | [340] 270 G |
| MALATHION | 121-75-5 | 500 H | 500 H | 50,000 H | 50,000 H | 140,000 S | 140,000 S |
| MALEIC HYDRAZIDE | 123-33-1 | 4,000 H | 4,000 H | 400,000 H | 400,000 H | 4,000 H | 4,000 H |
| MANEB | 12427-38-2 | [210] 11 G | [580] 45 G | [21,000] 1,100 G | [23,000] 4,500 [S] G | [210] 11 G | [580] 45 G |

All concentrations in µg/L M = Maximum Contaminant Level N = Inhalation
R = Residential H = Lifetime health advisory level S = Aqueous solubility cap
NR = Non-Residential G = Ingestion
THMs – The values listed for trihalomethanes (THMs) are the total for all THMs combined.
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**Appendix A**

**Table 1 – Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Groundwater**

| Regulated Substance | CASRN | Used Aquifers | | | | Nonuse Aquifers | |
|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| MERPHOS OXIDE | 78-48-8 | [1.3] 35 G | [3.5] 97 G | [130] 2,300 [G] S | [350] 2,300 [G] S | [1.3] 35 G | [3.5] 97 G |
| METHACRYLONITRILE | 126-98-7 | [4.2] 3.5 G | [12] 9.7 G | [420] 350 G | [1,200] 970 G | [4.2] 3.5 G | [12] 9.7 G |
| METHAMIDOPHOS | 10265-92-6 | [2.1] 1.7 G | [5.8] 4.9 G | [210] 170 G | [580] 490 G | [2.1] 1.7 G | [5.8] 4.9 G |
| METHANOL | 67-56-1 | [8,400] 42,000 N | [35,000] 180,000 N | [840,000] 4,200,000 N | [3,500,000] 18,000,000 N | [840,000] 4,200,000 N | [3,500,000] 18,000,000 N |
| METHOMYL | 16752-77-5 | 200 H | 200 H | 20,000 H | 20,000 H | 200 H | 200 H |
| METHOXYCHLOR | 72-43-5 | 40 M | 40 M | 45 S | 45 S | 45 S | 45 S |
| METHOXYETHANOL, 2- | 109-86-4 | 42 N | 180 N | 4,200 N | 18,000 N | [42] 420 N | [180] 1,800 N |
| METHYL ACETATE | 79-20-9 | [42,000] 35,000 G | [120,000] 97,000 G | [4,200,000] 3,500,000 G | [12,000,000] 9,700,000 G | [42,000] 35,000 G | [120,000] 97,000 G |
| METHYL ACRYLATE | 96-33-3 | 42 N | 180 N | 4,200 N | 18,000 N | 4,200 N | 18,000 N |
| METHYL CHLORIDE | 74-87-3 | 30 H | 30 H | 3,000 H | 3,000 H | 3,000 H | 3,000 H |
| METHYL ETHYL KETONE | 78-93-3 | 4,000 H | 4,000 H | 400,000 H | 400,000 H | 400,000 H | 400,000 H |
| METHYL HYDRAZINE | 60-34-4 | 0.042 N | 0.18 N | 4.2 N | 18 N | 0.42 N | 1.8 N |
| METHYL ISOBUTYL KETONE | 108-10-1 | [3,300] 2,800 G | [9,300] 7,800 G | [330,000] 280,000 G | [930,000] 780,000 G | [330,000] 280,000 G | [930,000] 780,000 G |
| METHYL ISOCYANATE | 624-83-9 | 2.1 N | 8.8 N | 210 N | 880 N | 2.1 N | 8.8 N |
| METHYL N-BUTYL KETONE | 591-78-6 | 63 N | 260 N | 6,300 N | 26,000 N | 63 N | 260 N |
| METHYL METHACRYLATE | 80-62-6 | 1,500 N | 6,200 N | 150,000 N | 620,000 N | 150,000 N | 620,000 N |
| METHYL METHANESULFONATE | 66-27-3 | [7.4] 6.6 G | [34] 27 G | [740] 660 G | [3,400] 2,700 G | [7.4] 6.6 G | [34] 27 |
| METHYL PARATHION | 298-00-0 | 1 H | 1 H | 100 H | 100 H | 1,000 H | 1,000 H |
| METHYL STYRENE (MIXED ISOMERS) | 25013-15-4 | 84 N | 350 N | 8,400 N | 35,000 N | 84 N | 350 N |
| METHYL TERT-BUTYL ETHER (MTBE) | 1634-04-4 | 20 | 20 | 2,000 | 2,000 | 200 | 200 |
| METHYLCHLOROPHENOXYACETIC ACID (MCPA) | 94-74-6 | 30 H | 30 H | 3,000 H | 3,000 H | 30,000 H | 30,000 H |
| METHYLENE BIS(2-CHLOROANILINE), 4,4'- | 101-14-4 | [2.3] 2.1 G | [34] 27 G | [230] 210 G | [3,400] 2,700 G | [2.3] 2.1 G | [34] 27 G |

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| Regulated Substance | CASRN | Used Aquifers | | | | Nonuse Aquifers | |
|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| METHYLNAPHTHALENE, 2- | 91-57-6 | [170] 6.3 [G] N | [470] 26 [G] N | [17,000] 630 [G] N | [25,000] 2,600 [S] N | [170] 6.3 [G] N | [470] 26 [G] N |
| METHYLSTYRENE, ALPHA | 98-83-9 | [2,900] 2,400 G | [8,200] 6,800 G | [290,000] 240,000 G | 560,000 S | [2,900] 2,400 G | [8,200] 6,800 G |
| METOLACHLOR | 51218-45-2 | 700 H | 700 H | 70,000 H | 70,000 H | 700 H | 700 H |
| METRIBUZIN | 21087-64-9 | 70 H | 70 H | 7,000 H | 7,000 H | 70 H | 70 |
| **MEVINPHOS** | **7786-34-7** | **0.87 G** | **2.4 G** | **87 G** | **240 G** | **0.87 G** | **2.4** |
| MONOCHLOROACETIC ACID (HAA) | 79-11-8 | 60 H | 60 H | 6,000 H | 6,000 H | 60 H | 60 H |
| NAPHTHALENE | 91-20-3 | 100 H | 100 H | 10,000 H | 10,000 H | [30,000] 10,000 [S] H | [30,000] 10,000 [S] H |
| NAPHTHYLAMINE, 1- | 134-32-7 | [0.41] 0.36 G | [1.9] 1.5 G | [41] 36 G | [190] 150 G | [410] 36 G | [1,900] 150 G |
| NAPHTHYLAMINE, 2- | 91-59-8 | [0.41] 0.36 G | [1.9] 1.5 G | [41] 36 G | [190] 150 G | [410] 360 G | [1,900] 1,500 G |
| NAPROPAMIDE | 15299-99-7 | 4,200 G | 12,000 G | 70,000 S | 70,000 S | 4,200 G | 12,000 G |
| NITROANILINE, O- | 88-74-4 | [420] 0.11 [G] N | [1,200] 0.44 [G] N | [42,000] 11 [G] N | [120,000] 44 [G] N | [420] 0.11 [G] N | [1,200] 0.44 [G] N |
| NITROANILINE, P- | 100-01-6 | [37] 33 G | [170] 140 G | [3,700] 3,300 G | [17,000] 14,000 G | [37] 33 G | [170] 140 G |
| NITROBENZENE | 98-95-3 | [83] 1.2 [G] N | [230] 6.3 [G] N | [8,300] 120 [G] N | [23,000] 630 [G] N | [83,000] 120 [G] N | [230,000] 630 [G] N |
| NITROGUANIDINE | 556-88-7 | 700 H | 700 H | 70,000 H | 70,000 H | 700 H | 700 H |
| NITROPHENOL, 2- | 88-75-5 | [330] 280 G | [930] 780 G | [33,000] 28,000 G | [93,000] 78,000 G | [330,000] 28,000 G | [930,000] 78,000 G |
| NITROPHENOL, 4- | 100-02-7 | 60 H | 60 H | 6,000 H | 6,000 H | [60,000] 6,000 H | [60,000] 6,000 H |
| NITROPROPANE, 2- | 79-46-9 | 0.018 N | 0.093 N | 1.8 N | 9.3 N | 0.18 N | 0.93 N |
| NITROSODIETHYLAMINE, N- | 55-18-5 | 0.00045 N | 0.0058 N | 0.045 N | 0.58 N | 0.0045 N | 0.058 N |
| NITROSODIMETHYLAMINE, N- | 62-75-9 | 0.0014 N | 0.018 N | 0.14 N | 1.8 N | 0.014 N | 0.18 N |

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## Appendix A

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| Regulated Substance | CASRN | Used Aquifers | | | | Nonuse Aquifers | |
|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| NITROSO-DI-N-BUTYLAMINE, N- | 924-16-3 | [0.14] 0.031 [G] N | [0.63] 0.16 [G] N | [14] 3.1 [G] N | [63] 16 [G] N | [140] 3.1 [G] N | [630] 16 [G] N |
| NITROSODI-N-PROPYLAMINE, N- | 621-64-7 | [0.1] 0.025 [G] N | [0.49] 0.13 [G] N | [10] 2.5 [G] N | [49] 13 [G] N | [100] 0.25 [G] N | [490] 1.3 [G] N |
| NITROSODIPHENYLAMINE, N- | 86-30-6 | [150] 19 [G] N | [690] 96 [G] N | [15,000] 1,900 [G] N | [35,000] 9,600 [S] N | [35,000] 1,900 [S] N | [35,000] 9,600 [S] N |
| NITROSO-N-ETHYLUREA, N- | 759-73-9 | [0.0084] 0.0079 G | [0.13] 0.1 G | [0.84] 0.79 G | [13] 10 G | [8.4] 7.9 G | [130] 100 G |
| OCTYL PHTHALATE, DI-N- | 117-84-0 | [420] 350 G | [1,200] 970 G | 3,000 S | 3,000 S | 3,000 S | 3,000 S |
| OXAMYL (VYDATE) | 23135-22-0 | 200 M | 200 M | 20,000 M | 20,000 M | 200 M | 200 M |
| PARAQUAT | 1910-42-5 | 30 H | 30 H | 3,000 H | 3,000 H | 30 H | 30 H |
| PARATHION | 56-38-2 | [250] 1 G | [700] 2.9 G | [20,000] 100 [S] G | [20,000] 290 [S] G | [250] 1 G | [700] 2.9 G |
| **PCBS, TOTAL (POLYCHLORINATED BIPHENYLS) (AROCLORS)** | **1336-36-3** | **0.5 M** | **0.5 M** | **50 M** | **50 M** | **0.5 M** | **0.5 M** |
| PCB-1016 (AROCLOR) | 12674-11-2 | [0.37] 2.4 G | [1.7] 6.8 G | [37] 240 G | [170] 250 [G] S | [0.37] 2.4 G | [1.7] 6.8 G |
| PCB-1221 (AROCLOR) | 11104-28-2 | [0.37] 0.33 G | [1.7] 1.4 G | [37] 33 G | [170] 140 G | [0.37] 0.33 G | [1.7] 1.4 G |
| PCB-1232 (AROCLOR) | 11141-16-5 | [0.37] 0.33 G | [1.7] 1.4 G | [37] 33 G | [170] 140 G | [0.37] 0.33 G | [1.7] 1.4 |
| PCB-1242 (AROCLOR) | 53469-21-9 | [0.37] 0.33 G | [1.7] 1.4 G | [37] 33 G | 100 S | [0.37] 0.33 G | [1.7] 1.4 |
| PCB-1248 (AROCLOR) | 12672-29-6 | [0.37] 0.33 G | [1.7] 1.4 G | [37] 33 G | 54 S | [0.37] 0.33 G | [1.7] 1.4 G |
| PCB-1254 (AROCLOR) | 11097-69-1 | [0.37] 0.69 G | [1.7] 1.9 G | [37] 57 [G] S | 57 S | [0.37] 0.69 G | [1.7] 1.9 G |
| PCB-1260 (AROCLOR) | 11096-82-5 | [0.37] 0.33 G | [1.7] 1.4 G | [37] 33 G | 80 S | [0.37] 0.33 G | [1.7] 1.7 G |
| PEBULATE | 1114-71-2 | [2,100] 1,700 G | [5,800] 4,900 G | 92,000 S | 92,000 S | [2,100] 1,700 G | [5,800] 4,900 G |
| PENTACHLOROBENZENE | 608-93-5 | [33] 28 G | [93] 78 G | 740 S | 740 S | 740 S | 740 S |

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| Regulated Substance | CASRN | Used Aquifers | | | | Nonuse Aquifers | |
|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| PENTACHLOROETHANE | 76-01-7 | [8.1] 7.2 G | [38] 30 G | [810] 720 G | [3,800] 3,000 G | [8.1] 7.2 G | [38] 30 G |
| PENTACHLORONITROBENZENE | 82-68-8 | [2.8] 2.5 G | [13] 10 G | [280] 250 G | 440 S | 440 S | 440 S |
| PENTACHLOROPHENOL | 87-86-5 | 1 M | 1 M | 100 M | 100 M | 1,000 M | 1,000 M |
| **PERFLUOROBUTANE SULFONATE (PFBS)** | **375-73-5** | **690 G** | **1,900 G** | **69,000 G** | **190,000 G** | **690 G** | **1,900 G** |
| **PERFLUOROOCTANE SULFONATE (PFOS)** | **1763-23-1** | **0.07 H** | **0.07 H** | **7 H** | **7 H** | **0.07 H** | **0.07 H** |
| **PERFLUOROOCTANOIC ACID (PFOA)** | **335-67-1** | **0.07 H** | **0.07 H** | **7 H** | **7 H** | **0.07 H** | **0.07 H** |
| PHENACETIN | 62-44-2 | [330] 300 G | [1,500] 1,200 G | [33,000] 30,000 G | [150,000] 120,000 G | [330,000] 300,000 G | 760,000 |
| PHENANTHRENE | 85-01-8 | 1,100 S | 1,100 S | 1,100 S | 1,100 S | 1,100 S | 1,100 S |
| PHENOL | 108-95-2 | 2,000 H | 2,000 H | 200,000 H | 200,000 H | 200,000 H | 200,000 H |
| PHENYL MERCAPTAN | 108-98-5 | [42] 35 G | [120] 97 G | [4,200] 3,500 G | [12,000] 9,700 G | [42] 35 G | [120] 97 G |
| PHENYLENEDIAMINE, M- | 108-45-2 | [250] 210 G | [700] 580 G | [25,000] 21,000 G | [70,000] 58,000 G | [250,000] 210,000 G | [700,000] 580,000 G |
| PHENYLPHENOL, 2- | 90-43-7 | [380] 340 G | [1,800] 1,400 G | [38,000] 34,000 G | [180,000] 140,000 G | [380,000] 340,000 G | 700,000 S |
| PHORATE | 298-02-2 | [8.3] 6.9 G | [23] 19 G | [830] 690 G | [2,300] 1,900 G | [8.3] 6.9 G | [23] 19 G |
| PHTHALIC ANHYDRIDE | 85-44-9 | [83,000] 42 [G] N | [230,000] 180 [G] N | [6,200,000] 4,200 [S] N | [6,200,000] 18,000 [S] N | [6,200,000] 4,200 [S] N | [6,200,000] 18,000 [S] N |
| PICLORAM | 1918-02-1 | 500 M | 500 M | 50,000 M | 50,000 M | 500 M | 500 M |
| **[POLYCHLORINATED BIPHENYLS (PCBS)]** | **[1336-36-3]** | **[0.5] [M]** | **[0.5] [M]** | **[50] [M]** | **[50] [M]** | **[0.5] [M]** | **[0.5] [M]** |
| PROMETON | 1610-18-0 | 400 H | 400 H | 40,000 H | 40,000 H | 400 H | 400 |
| PRONAMIDE | 23950-58-5 | [3,100] 2,600 G | [8,800] 7,300 G | 15,000 S | 15,000 S | [3,100] 2,600 G | [8,800] 7,300 G |
| **PROPACHLOR** | **1918-16-7** | **0.1 H** | **0.1 H** | **10 H** | **10 H** | **10 H** | **10 H** |
| PROPANIL | 709-98-8 | [210] 170 G | [580] 490 G | [21,000] 17,000 G | [58,000] 49,000 G | [210] 170 G | [580] 490 G |
| PROPANOL, 2- (ISOPROPYL ALCOHOL) | 67-63-0 | 420 N | 1,800 N | 42,000 N | 180,000 N | 420 N | 1,800 N |
| PROPAZINE | 139-40-2 | 10 H | 10 H | 1,000 H | 1,000 H | 10 H | 10 H |
| PROPHAM | 122-42-9 | 100 H | 100 H | 10,000 H | 10,000 H | 100 H | 100 H |

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|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| PROPYLBENZENE, N- | 103-65-1 | 2,100 N | 8,800 N | 52,000 S | 52,000 S | 2,100 N | 8,800 N |
| PROPYLENE OXIDE | 75-56-9 | [3] 2.7 G | [14] 11 G | [300] 270 G | [1,400] 1,100 G | [3] 2.7 G | [14] 11 G |
| PYRENE | 129-00-0 | 130 S | 130 S | 130 S | 130 S | 130 S | 130 S |
| **PYRETHRUM** | **8003-34-7** | **350 S** | **350 S** | **350 S** | **350 S** | **350 S** | **350 S** |
| PYRIDINE | 110-86-1 | [42] 35 G | [120] 97 G | [4,200] 3,500 G | [12,000] 9,700 G | [420] 350 G | [1,200] 970 G |
| QUINOLINE | 91-22-5 | [0.24] 0.22 G | [1.1] 0.91 G | [24] 22 G | [110] 91 G | [240] 220 G | [1,100] 910 G |
| QUIZALOFOP (ASSURE) | 76578-14-8 | 300 S | 300 S | 300 S | 300 S | 300 S | 300 S |
| RDX | 121-82-4 | 2 H | 2 H | 200 H | 200 H | 2 H | 2 H |
| RESORCINOL | 108-46-3 | [83,000] 69,000 G | [230,000] 190,000 G | [8,300,000] 6,900,000 G | [23,000,000] 19,000,000 G | [83,000] 69,000 G | [230,000] 190,000 G |
| RONNEL | 299-84-3 | [2,100] 1,700 G | [5,800] 4,900 G | 40,000 S | 40,000 S | [2,100] 1,700 G | [5,800] 4,900 G |
| SIMAZINE | 122-34-9 | 4 M | 4 M | 400 M | 400 M | 4 M | 4 M |
| STRYCHNINE | 57-24-9 | [13] 10 G | [35] 29 G | [1,300] 1,000 G | [3,500] 2,900 G | [13,000] 10,000 G | [35,000] 29,000 G |
| STYRENE | 100-42-5 | 100 M | 100 M | 10,000 M | 10,000 M | 10,000 M | 10,000 M |
| TEBUTHIURON | 34014-18-1 | 500 H | 500 H | 50,000 H | 50,000 H | 500 H | 500 H |
| TERBACIL | 5902-51-2 | 90 H | 90 H | 9,000 H | 9,000 H | 90 H | 90 H |
| TERBUFOS | 13071-79-9 | 0.4 H | 0.4 H | 40 H | 40 H | 0.4 H | 0.4 H |
| TETRACHLOROBENZENE, 1,2,4,5- | 95-94-3 | [13] 10 G | [35] 29 G | 580 S | 580 S | 580 S | 580 S |
| TETRACHLORODIBENZO-P-DIOXIN, 2,3,7,8- (TCDD) | 1746-01-6 | 0.00003 M | 0.00003 M | 0.003 M | 0.003 M | 0.019 S | 0.019 |
| TETRACHLOROETHANE, 1,1,1,2- | 630-20-6 | 70 H | 70 H | 7,000 H | 7,000 H | 7,000 H | 7,000 H |
| TETRACHLOROETHANE, 1,1,2,2- | 79-34-5 | 0.84 N | 4.3 N | 84 N | 430 N | 84 N | 430 N |
| TETRACHLOROETHYLENE (PCE) | 127-18-4 | 5 M | 5 M | 500 M | 500 M | 50 M | 50 M |
| TETRACHLOROPHENOL, 2,3,4,6- | 58-90-2 | [1,300] 1,000 G | [3,500] 2,900 G | [130,000] 100,000 G | 180,000 S | 180,000 S | 180,000 S |
| TETRAETHYL LEAD | 78-00-2 | [0.0042] 0.0035 G | [0.012] 0.0097 G | [0.42] 0.35 G | [1] 0.97 G | [4.2] 3.5 G | [12] 9.7 G |
| TETRAETHYLDITHIOPYROPHOSPHATE | 3689-24-5 | [21] 17 G | [58] 49 G | [2,100] 1,700 G | [5,800] 4,900 G | [21] 17 G | [58] 49 G |

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|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| TETRAHYDROFURAN | 109-99-9 | [26] 25 N | 130 N | [2,600] 2,500 N | 13,000 N | [26] 25 N | 130 N |
| THIOFANOX | 39196-18-4 | [13] 10 G | [35] 29 G | [1,300] 1,000 G | [3,500] 2,900 G | [13] 10 G | [35] 29 G |
| THIRAM | 137-26-8 | [210] 520 G | [580] 1,500 G | [21,000] 30,000 [G] S | 30,000 S | [210] 520 G | [580] 1,500 G |
| TOLUENE | 108-88-3 | 1,000 M | 1,000 M | 100,000 M | 100,000 M | 100,000 M | 100,000 M |
| TOLUIDINE, M- | 108-44-1 | [46] 41 G | [210] 170 G | [4,600] 4,100 G | [21,000] 17,000 G | [46] 41 G | [210] 170 |
| TOLUIDINE, O | 95-53-4 | [46] 41 G | [210] 170 G | [4,600] 4,100 G | [21,000] 17,000 G | [46,000] 41,000 G | [210,000] 170,000 G |
| TOLUIDINE, P- | 106-49-0 | [24] 22 G | [110] 91 G | [2,400] 2,200 G | [11,000] 9,100 G | [24] 22 G | [110] 91 G |
| TOXAPHENE | 8001-35-2 | 3 M | 3 M | 300 M | 300 M | 3 M | 3 M |
| TRIALLATE | 2303-17-5[ | [540] 0.91 G | [1,500] 3.8 G | [4,000] 91 [S] G | [4,000] 380 [S] G | [540] 0.91 G | [1,500] 3.8 G |
| TRIBROMOMETHANE (BROMOFORM) (THM) | 75-25-2 | 80 M | 80 M | 8,000 M | 8,000 M | 8,000 M | 8,000 M |
| TRICHLORO-1,2,2-TRIFLUOROETHANE, 1,1,2- | 76-13-1 | [63,000] 11,000 N | [170,000] 44,000 [S] N | 170,000 S | 170,000 S | 170,000 S | 170,000 S |
| TRICHLOROACETIC ACID (HAA) | 76-03-9 | 60 [H] M | 60 [H] M | 6,000 [H] M | 6,000 [H] M | 60 [H] M | 60 [H] M |
| TRICHLOROBENZENE, 1,2,4- | 120-82-1 | 70 M | 70 M | 7,000 M | 7,000 M | [44,000] 7,000 [S] M | [44,000] 7,000 [S] M |
| TRICHLOROBENZENE, 1,3,5- | 108-70-3 | 40 H | 40 H | 4,000 H | 4,000 H | 40 H | 40 H |
| TRICHLOROETHANE, 1,1,1- | 71-55-6 | 200 M | 200 M | 20,000 M | 20,000 M | 2,000 M | 2,000 M |
| TRICHLOROETHANE, 1,1,2- | 79-00-5 | 5 M | 5 M | 500 M | 500 M | 50 M | 50 M |
| TRICHLOROETHYLENE (TCE) | 79-01-6 | 5 M | 5 M | 500 M | 500 M | 50 M | 50 M |
| TRICHLOROPHENOL, 2,4,5- | 95-95-4 | [4,200] 3,500 G | [12,000] 9,700 G | [420,000] 350,000 G | [1,000,000] 970,000 [S] G | 1,000,000 S | 1,000,000 S |

All concentrations in µg/L
R = Residential
NR = Non-Residential
M = Maximum Contaminant Level
H = Lifetime health advisory level
G = Ingestion
N = Inhalation
S = Aqueous solubility cap

THMs – The values listed for trihalomethanes (THMs) are the total for all THMs combined.
HAAs – The values listed for haloacetic acids (HAAs) are the total for all HAAs combined.
**PFOA and PFOS values listed are for individual or total combined.**

## Appendix A

### Table 1 – Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Groundwater

| Regulated Substance | CASRN | Used Aquifers | | | | Nonuse Aquifers | |
|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| TRICHLOROPHENOL, 2,4,6- | 88-06-2 | [42] 35 G | [120] 97 G | [4,200] 3,500 G | [12,000] 9,700 G | [42,000] 35,000 G | [120,000] 97,000 G |
| TRICHLOROPHENOXYACETIC ACID, 2,4,5- (2,4,5-T) | 93-76-5 | 70 H | 70 H | 7,000 H | 7,000 H | 70,000 H | 70,000 H |
| TRICHLOROPHENOXYPROPIONIC ACID, 2,4,5- (2,4,5-TP) | 93-72-1 | 50 M | 50 M | 5,000 M | 5,000 M | 50 M | 50 M |
| TRICHLOROPROPANE, 1,1,2- | 598-77-6 | [210] 170 G | [580] 490 G | [21,000] 17,000 G | [58,000] 49,000 G | [210] 170 G | [580] 490 G |
| TRICHLOROPROPANE, 1,2,3- | 96-18-4 | 40 H | 40 H | 4,000 H | 4,000 H | 4,000 H | 4,000 H |
| TRICHLOROPROPENE, 1,2,3- | 96-19-5 | 0.63 N | 2.6 N | 63 N | 260 N | 0.63 N | 2.6 N |
| TRIETHYLAMINE | 121-44-8 | 15 N | 62 N | 1,500 N | 6,200 N | 15 N | 62 N |
| TRIETHYLENE GLYCOL | 112-27-6 | [83,000] 69,000 G | [230,000] 190,000 G | [8,300,000] 6,900,000 G | [23,000,000] 19,000,000 G | [83,000] 69,000 G | [230,000] 190,000 G |
| TRIFLURALIN | 1582-09-8 | 10 H | 10 H | 1,000 H | 1,000 H | 10 H | 10 H |
| TRIMETHYLBENZENE, 1,3,4- (TRIMETHYLBENZENE, 1,2,4-) | 95-63-6 | [15] 130 N | [62] 530 N | [1,500] 13,000 N | [6,200] 53,000 N | [1,500] 13,000 N | [6,200] 53,000 N |
| TRIMETHYLBENZENE, 1,3,5- | 108-67-8 | [420] 130 [G] N | [1,200] 530 [G] N | [42,000] 13,000 [G] N | 49,000 S | [420] 130 [G] N | [1,200] 530 [G] N |
| TRINITROGLYCEROL (NITROGLYCERIN) | 55-63-0 | 5 H | 5 H | 500 H | 500 H | [5] 500 H | [5] 500 H |
| TRINITROTOLUENE, 2,4,6- | 118-96-7 | 2 H | 2 H | 200 H | 200 H | 2 H | 2 H |
| VINYL ACETATE | 108-05-4 | 420 N | 1,800 N | 42,000 N | 180,000 N | 420 N | 1,800 N |
| VINYL BROMIDE (BROMOETHENE) | 593-60-2 | 1.5 N | 7.8 N | 150 N | 780 N | 15 N | 78 N |
| VINYL CHLORIDE | 75-01-4 | 2 M | 2 M | 200 M | 200 M | 20 M | 20 |
| WARFARIN | 81-81-2 | [13] 10 G | [35] 29 G | [1,300] 1,000 G | [3,500] 2,900 G | [13,000] 10,000 G | 17,000 |
| XYLENES (TOTAL) | 1330-20-7 | 10,000 M | 10,000 M | 180,000 S | 180,000 S | 180,000 S | 180,000 S |
| ZINEB | 12122-67-7 | [2,100] 1,700 G | [5,800] 4,900 G | 10,000 S | 10,000 S | [2,100] 1,700 G | [5,800] 4,900 G |

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THMs – The values listed for trihalomethanes (THMs) are the total for all THMs combined.
HAAs – The values listed for haloacetic acids (HAAs) are the total for all HAAs combined.
**PFOA and PFOS values listed are for individual or total combined.**

## Appendix A

### Table 2 – Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Groundwater

| Regulated Substance | CASRN | Used Aquifers | | | | Nonuse Aquifers | |
|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| ANTIMONY | 7440-36-0 | 6 M | 6 M | 600 M | 600 M | 6,000 M | 6,000 M |
| ARSENIC | 7440-38-2 | 10 M | 10 M | 1,000 M | 1,000 M | 10,000 M | 10,000 M |
| ASBESTOS (fibers/L) | 12001-29-5 | 7,000,000 M | 7,000,000 M | 7,000,000 M | 7,000,000 M | 7,000,000 M | 7,000,000 M |
| BARIUM AND COMPOUNDS | 7440-39-3 | 2,000 M | 2,000 M | 200,000 M | 200,000 M | 2,000,000 M | 2,000,000 M |
| BERYLLIUM | 7440-41-7 | 4 M | 4 M | 400 M | 400 M | 4,000 M | 4,000 M |
| BORON AND COMPOUNDS | 7440-42-8 | 6,000 H | 6,000 H | 600,000 H | 600,000 H | 6,000,000 H | 6,000,000 H |
| CADMIUM | 7440-43-9 | 5 M | 5 M | 500 M | 500 M | 5,000 M | 5,000 M |
| CHROMIUM (TOTAL) | 7440-47-3 | 100 M | 100 M | 10,000 M | 10,000 M | 100,000 M | 100,000 M |
| COBALT | 7440-48-4 | [13] **10** G | [35] **29** G | [1,300] **1,000** G | [3,500] **2,900** G | [13,000] **10,000** G | [35,000] **29,000** G |
| **COPPER** | **7440-50-8** | **1,000 M** | **1,000 M** | **100,000 M** | **100,000 M** | **1,000,000 M** | **1,000,000 M** |
| CYANIDE, FREE | 57-12-5 | 200 M | 200 M | 20,000 M | 20,000 M | 200,000 M | 200,000 M |
| FLUORIDE | 16984-48-8 | 4,000 M | 4,000 M | 400,000 M | 400,000 M | 4,000,000 M | 4,000,000 M |
| LEAD | 7439-92-1 | 5 M | 5 M | 500 M | 500 M | 5,000 M | 5,000 M |
| LITHIUM | 7439-93-2 | [83] **69** G | [230] **190** G | [8,300] **6,900** G | [23,000] **19,000** G | [83,000] **69,000** G | [230,000] **190,000** G |
| MANGANESE | 7439-96-5 | 300 H | 300 H | 30,000 H | 30,000 H | 300,000 H | 300,000 H |
| MERCURY | 7439-97-6 | 2 M | 2 M | 200 M | 200 M | 2,000 M | 2,000 M |
| MOLYBDENUM | 7439-98-7 | 40 H | 40 H | 4,000 H | 4,000 H | 40,000 H | 40,000 H |
| NICKEL | 7440-02-0 | 100 H | 100 H | 10,000 H | 10,000 H | 100,000 H | 100,000 H |
| NITRATE NITROGEN | 14797-55-8 | 10,000 M | 10,000 M | 1,000,000 M | 1,000,000 M | 10,000,000 M | 10,000,000 M |
| NITRITE NITROGEN | 14797-65-0 | 1,000 M | 1,000 M | 100,000 M | 100,000 M | 1,000,000 M | 1,000,000 M |
| PERCHLORATE | 7790-98-9 | 15 H | 15 H | 1,500 H | 1,500 H | 15,000 H | 15,000 H |
| SELENIUM | 7782-49-2 | 50 M | 50 M | 5,000 M | 5,000 M | 50,000 M | 50,000 M |
| SILVER | 7440-22-4 | 100 H | 100 H | 10,000 H | 10,000 H | 100,000 H | 100,000 H |
| STRONTIUM | 7440-24-6 | 4,000 H | 4,000 H | 400,000 H | 400,000 H | 4,000,000 H | 4,000,000 H |
| THALLIUM | 7440-28-0 | 2 M | 2 M | 200 M | 200 M | 2,000 M | 2,000 M |
| TIN | 7440-31-5 | [25,000] **21,000** G | [70,000] **58,000** G | [2,500,000] **2,100,000** G | [7,000,000] **5,800,000** G | [25,000,000] **21,000,000** G | [70,000,000] **58,000,000** G |

All concentrations in µg/L (except asbestos)
M = Maximum Contaminant Level
H = Lifetime Health Advisory Level
SMCL = Secondary Maximum Contaminant Level
G = Ingestion
N = Inhalation
**PA State MCL adopted as MSC for Copper and Lead**

R = Residential
NR = Nonresidential

**Appendix A**

**Table 2 – Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Groundwater**

| Regulated Substance | CASRN | Used Aquifers | | | | Nonuse Aquifers | |
|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | TDS > 2500 mg/L | | | |
| | | R | NR | R | NR | R | NR |
| VANADIUM | 7440-62-2 | [2.9] 2.4 G | [8.2] 6.8 G | [290] 240 G | [820] 680 G | [2,900] 2,400 G | [8,200] 6,800 G |
| ZINC AND COMPOUNDS | 7440-66-6 | 2,000 H | 2,000 H | 200,000 H | 200,000 H | 2,000,000 H | 2,000,000 H |

| SECONDARY CONTAMINANTS | | | |
|---|---|---|---|
| REGULATED SUBSTANCE | CASRN | SMCL | UNITS |
| ALUMINUM | 7429-90-5 | 200 | µg/L |
| CHLORIDE | 7647-14-5 | 250,000 | µg/L |
| [COPPER] | [7440-50-8] | [1000] | [µg/L] |
| [FLUORIDE] | [7681-49-4] | [2,000] | [µg/L] |
| IRON | 7439-89-6 | 300 | µg/L |
| [MANGANESE] | [7439-96-5] | [50] | [µg/L] |
| SULFATE | 7757-82-6 | 250,000 | µg/L |

All concentrations in µg/L (except asbestos)
M = Maximum Contaminant Level
H = Lifetime Health Advisory Level
SMCL = Secondary Maximum Contaminant Level
G = Ingestion
N = Inhalation
**PA State MCL adopted as MSC for Copper and Lead**

R = Residential
NR = Nonresidential

**Appendix A**
**Table 3 – Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil**
**A. Direct Contact Numeric Values**

| REGULATED SUBSTANCE | CASRN | Residential 0-15 feet | | Nonresidential | | | |
|---|---|---|---|---|---|---|---|
| | | | | Surface Soil 0-2 feet | | Subsurface Soil 2-15 feet | |
| ACENAPHTHENE | 83-32-9 | 13,000 | G | 190,000 | C | 190,000 | C |
| ACENAPHTHYLENE | 208-96-8 | 13,000 | G | 190,000 | C | 190,000 | C |
| ACEPHATE | 30560-19-1 | [880] 260 | G | [10,000] 3,800 | G | 190,000 | C |
| ACETALDEHYDE | 75-07-0 | 170 | N | [720] 710 | N | [830] 820 | N |
| ACETONE | 67-64-1 | 10,000 | C | 10,000 | C | 10,000 | C |
| ACETONITRILE | 75-05-8 | 1,100 | N | [4,800] 4,700 | N | 5,500 | N |
| ACETOPHENONE | 98-86-2 | 10,000 | C | 10,000 | C | 10,000 | C |
| ACETYLAMINOFLUORENE, 2- (2AAF) | 53-96-3 | 4.9 | G | 24 | G | 190,000 | C |
| ACROLEIN | 107-02-8 | 0.38 | N | 1.6 | N | 1.8 | N |
| ACRYLAMIDE | 79-06-1 | 1.7 | N | 22 | N | [26] 25 | N |
| ACRYLIC ACID | 79-10-7 | 19 | N | 79 | N | 91 | N |
| ACRYLONITRILE | 107-13-1 | [6.6] 6.5 | N | 33 | N | [38] 37 | N |
| ALACHLOR | 15972-60-8 | 330 | G | 1,600 | G | 190,000 | C |
| ALDICARB | 116-06-3 | 220 | G | 3,200 | G | 190,000 | C |
| ALDICARB SULFONE | 1646-88-4 | 220 | G | 3,200 | G | 190,000 | C |
| ALDICARB SULFOXIDE | 1646-87-3 | 220 | G | 3,200 | G | 190,000 | C |
| ALDRIN | 309-00-2 | 1.1 | G | 5.4 | G | 190,000 | C |
| ALLYL ALCOHOL | 107-18-6 | 1.9 | N | [8] 7.9 | N | 9.1 | N |
| AMETRYN | 834-12-8 | 2,000 | G | 29,000 | G | 190,000 | C |
| AMINOBIPHENYL, 4- | 92-67-1 | 0.89 | G | 4.3 | G | 190,000 | C |
| AMITROLE | 61-82-5 | 20 | G | 97 | G | 190,000 | C |
| AMMONIA | 7664-41-7 | [1,900] 9,600 | N | [8,000] 10,000 | [N] C | [9,100] 10,000 | [N] C |
| AMMONIUM SULFAMATE | 7773-06-0 | 44,000 | G | 190,000 | C | 190,000 | C |
| ANILINE | 62-53-3 | 19 | N | 79 | N | [91] 90 | N |
| ANTHRACENE | 120-12-7 | 66,000 | G | 190,000 | C | 190,000 | C |
| ATRAZINE | 1912-24-9 | 81 | G | 400 | G | 190,000 | C |
| AZINPHOS-METHYL (GUTHION) | 86-50-0 | [660] 330 | G | [9,600] 4,800 | G | 190,000 | C |
| BAYGON (PROPOXUR) | 114-26-1 | 880 | G | 13,000 | G | 190,000 | C |
| BENOMYL | 17804-35-2 | [11,000] 7,800 | G | [160,000] 38,000 | G | 190,000 | C |
| BENTAZON | 25057-89-0 | 6,600 | G | 96,000 | G | 190,000 | C |
| BENZENE | 71-43-2 | 57 | N | [290] 280 | N | 330 | N |
| BENZIDINE | 92-87-5 | 0.018 | G | 0.4 | G | 190,000 | C |
| BENZO[A]ANTHRACENE | 56-55-3 | [6] 6.1 | G | 130 | G | 190,000 | C |
| BENZO[A]PYRENE | 50-32-8 | [0.58] 4.2 | G | [12] 91 | G | 190,000 | C |
| BENZO[B]FLUORANTHENE | 205-99-2 | 3.5 | G | 76 | G | 190,000 | C |
| BENZO[GHI]PERYLENE | 191-24-2 | 13,000 | G | 190,000 | C | 190,000 | C |
| BENZO[K]FLUORANTHENE | 207-08-9 | [4] 3.5 | G | 76 | G | 190,000 | C |
| BENZOIC ACID | 65-85-0 | 190,000 | C | 190,000 | C | 190,000 | C |
| BENZOTRICHLORIDE | 98-07-7 | 1.4 | G | 7 | G | 10,000 | C |
| BENZYL ALCOHOL | 100-51-6 | 10,000 | C | 10,000 | C | 10,000 | C |
| BENZYL CHLORIDE | 100-44-7 | 9 | N | 45 | N | 52 | N |
| BETA PROPIOLACTONE | 57-57-8 | 0.11 | N | [0.56] 0.55 | N | [0.64] 0.63 | N |
| BHC, ALPHA | 319-84-6 | 3 | G | 14 | G | 190,000 | C |
| BHC, BETA- | 319-85-7 | 10 | G | 51 | G | 190,000 | C |
| BHC, GAMMA (LINDANE) | 58-89-9 | 17 | G | 83 | G | 190,000 | C |

All concentrations in mg/kg
G – Ingestion
N- Inhalation
C- Cap

**Appendix A**
**Table 3 – Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil**
**A. Direct Contact Numeric Values**

| REGULATED SUBSTANCE | CASRN | Residential 0-15 feet | | Nonresidential | | | |
|---|---|---|---|---|---|---|---|
| | | | | Surface Soil 0-2 feet | | Subsurface Soil 2-15 feet | |
| BIPHENYL, 1,1- | 92-52-4 | [2,300] **8.2** | [G] **N** | [11,000] **34** | [G] **N** | [190,000] **40** | [C] **N** |
| BIS(2-CHLOROETHOXY)METHANE | 111-91-1 | 660 | G | 9,600 | G | 10,000 | C |
| BIS(2-CHLOROETHYL)ETHER | 111-44-4 | 1.3 | N | 6.7 | N | [7.7] **7.6** | N |
| BIS(2-CHLORO-ISOPROPYL)ETHER | 108-60-1 | 44 | N | 220 | N | 250 | N |
| BIS(CHLOROMETHYL)ETHER | 542-88-1 | [0.0072] **0.0071** | N | 0.036 | N | 0.041 | N |
| BIS[2-ETHYLHEXYL] PHTHALATE | 117-81-7 | 1,300 | G | 6,500 | G | 10,000 | C |
| BISPHENOL A | 80-05-7 | 11,000 | G | 160,000 | G | 190,000 | C |
| BROMACIL | 314-40-9 | 22,000 | G | 190,000 | C | 190,000 | C |
| **BROMOBENZENE** | **108-86-1** | **1,100** | **N** | **4,700** | **N** | **5,400** | **N** |
| BROMOCHLOROMETHANE | 74-97-5 | [770] **760** | N | 3,200 | N | 3,600 | N |
| BROMODICHLOROMETHANE | 75-27-4 | 12 | N | 60 | N | 69 | N |
| BROMOMETHANE | 74-83-9 | [96] **95** | N | 400 | N | 460 | N |
| BROMOXYNIL | 1689-84-5 | [4,400] **180** | G | [64,000] **880** | G | 190,000 | C |
| BROMOXYNIL OCTANOATE | 1689-99-2 | [4,400] **180** | G | [64,000] **880** | G | 190,000 | C |
| BUTADIENE, 1,3- | 106-99-0 | [5.5] **15** | [G] **N** | [27] **74** | [G] **N** | 85 | N |
| BUTYL ALCOHOL, N- | 71-36-3 | 10,000 | C | 10,000 | C | 10,000 | C |
| BUTYLATE | 2008-41-5 | 10,000 | C | 10,000 | C | 10,000 | C |
| BUTYLBENZENE, N- | 104-51-8 | 10,000 | C | 10,000 | C | 10,000 | C |
| BUTYLBENZENE, SEC- | 135-98-8 | 10,000 | C | 10,000 | C | 10,000 | C |
| BUTYLBENZENE, TERT- | 98-06-6 | 10,000 | C | 10,000 | C | 10,000 | C |
| BUTYLBENZYL PHTHALATE | 85-68-7 | 9,800 | G | 10,000 | C | 10,000 | C |
| CAPTAN | 133-06-2 | 8,100 | G | 40,000 | G | 190,000 | C |
| CARBARYL | 63-25-2 | 22,000 | G | 190,000 | C | 190,000 | C |
| CARBAZOLE | 86-74-8 | 930 | G | 4,600 | G | 190,000 | C |
| CARBOFURAN | 1563-66-2 | 1,100 | G | 16,000 | G | 190,000 | C |
| CARBON DISULFIDE | 75-15-0 | 10,000 | C | 10,000 | C | 10,000 | C |
| CARBON TETRACHLORIDE | 56-23-5 | [74] **75** | N | 370 | N | 430 | N |
| CARBOXIN | 5234-68-4 | 22,000 | G | 190,000 | C | 190,000 | C |
| CHLORAMBEN | 133-90-4 | 3,300 | G | 48,000 | G | 190,000 | C |
| CHLORDANE | 57-74-9 | 53 | G | 260 | G | 190,000 | C |
| CHLORO-1,1-DIFLUOROETHANE, 1- | 75-68-3 | 10,000 | C | 10,000 | C | 10,000 | C |
| CHLORO-1-PROPENE, 3- (ALLYL CHLORIDE) | 107-05-1 | 19 | N | 80 | N | [91] **92** | N |
| CHLOROACETALDEHYDE | 107-20-0 | [62] **69** | G | [300] **340** | G | 10,000 | C |
| CHLOROACETOPHENONE, 2- | 532-27-4 | 190,000 | C | 190,000 | C | 190,000 | C |
| CHLOROANILINE, P- | 106-47-8 | 93 | G | 460 | G | 190,000 | C |
| CHLOROBENZENE | 108-90-7 | [960] **950** | N | [4,000] **3,900** | N | [4,600] **4,500** | N |
| CHLOROBENZILATE | 510-15-6 | 170 | G | 830 | G | 190,000 | C |
| CHLOROBUTANE, 1- | 109-69-3 | 8,800 | G | 10,000 | C | 10,000 | C |
| CHLORODIBROMOMETHANE | 124-48-1 | [17] **220** | [N] **G** | [82] **1,100** | [N] **G** | [95] **10,000** | [N] **C** |
| CHLORODIFLUOROMETHANE | 75-45-6 | 10,000 | C | 10,000 | C | 10,000 | C |
| CHLOROETHANE | 75-00-3 | [6,400] **10,000** | [G] **C** | 10,000 | C | 10,000 | C |
| CHLOROFORM | 67-66-3 | 19 | N | [97] **96** | N | 110 | N |
| CHLORONAPHTHALENE, 2- | 91-58-7 | 18,000 | G | 190,000 | C | 190,000 | C |

All concentrations in mg/kg
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C- Cap

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**A. Direct Contact Numeric Values**

| REGULATED SUBSTANCE | CASRN | Residential 0-15 feet | | Nonresidential | | | |
|---|---|---|---|---|---|---|---|
| | | | | Surface Soil 0-2 feet | | Subsurface Soil 2-15 feet | |
| CHLORONITROBENZENE, P- | 100-00-5 | [220] 39 | [G] N | [3,200] 160 | [G] N | [190,000] 180 | [C] N |
| CHLOROPHENOL, 2- | 95-57-8 | 1,100 | G | 10,000 | C | 10,000 | C |
| CHLOROPRENE | 126-99-8 | 1.5 | N | 7.4 | N | 8.5 | N |
| CHLOROPROPANE, 2- | 75-29-6 | 1,900 | N | [8,000] 7,900 | N | 9,100 | N |
| CHLOROTHALONIL | 1897-45-6 | [3,300] 1,100 | G | [29,000] 5,400 | G | 190,000 | C |
| CHLOROTOLUENE, O- | 95-49-8 | 4,400 | G | 10,000 | C | 10,000 | C |
| CHLOROTOLUENE, P- | 106-43-4 | 4,400 | C | 10,000 | C | 10,000 | C |
| CHLORPYRIFOS | 2921-88-2 | 220 | G | 3,200 | G | 190,000 | C |
| CHLORSULFURON | 64902-72-3 | [11,000] 4,400 | G | [160,000] 64,000 | G | 190,000 | C |
| CHLORTHAL-DIMETHYL (DACTHAL) (DCPA) | 1861-32-1 | 2,200 | G | 32,000 | G | 190,000 | C |
| CHRYSENE | 218-01-9 | 35 | G | 760 | G | 190,000 | C |
| CRESOL(S) | 1319-77-3 | 10,000 | C | 10,000 | C | 10,000 | C |
| CRESOL, 4,6-DINITRO-O- | 534-52-1 | 18 | G | 260 | G | 190,000 | C |
| CRESOL, O- (2-METHYLPHENOL) | 95-48-7 | 11,000 | G | 160,000 | G | 190,000 | C |
| CRESOL, M- (3-METHYLPHENOL) | 108-39-4 | 10,000 | C | 10,000 | C | 10,000 | C |
| CRESOL, P- (4-METHYLPHENOL) | 106-44-5 | 1,100 | G | 16,000 | G | 190,000 | C |
| CRESOL, P-CHLORO-M- | 59-50-7 | 22,000 | G | 190,000 | G | 190,000 | C |
| CROTONALDEHYDE | 4170-30-3 | 9.8 | G | 48 | G | 10,000 | C |
| CROTONALDEHYDE, TRANS- | 123-73-9 | 9.8 | G | 48 | G | 10,000 | C |
| CUMENE (ISOPROPYL BENZENE) | 98-82-8 | [7,700] 7,600 | N | 10,000 | C | 10,000 | C |
| CYANAZINE | 21725-46-2 | 22 | G | 110 | G | 190,000 | C |
| CYCLOHEXANE | 110-82-7 | 10,000 | C | 10,000 | C | 10,000 | C |
| CYCLOHEXANONE | 108-94-1 | 10,000 | C | 10,000 | C | 10,000 | C |
| CYFLUTHRIN | 68359-37-5 | 5,500 | G | 80,000 | G | 190,000 | C |
| CYROMAZINE | 66215-27-8 | [1,700] 110,000 | G | [24,000] 190,000 | [G] C | 190,000 | C |
| DDD, 4,4'- | 72-54-8 | 78 | G | 380 | G | 190,000 | C |
| DDE, 4,4'- | 72-55-9 | 55 | G | 270 | G | 190,000 | C |
| DDT, 4,4'- | 50-29-3 | 55 | G | 270 | G | 190,000 | C |
| DI(2-ETHYLHEXYL)ADIPATE | 103-23-1 | 10,000 | C | 10,000 | C | 10,000 | C |
| DIALLATE | 2303-16-4 | 300 | G | 1,500 | G | 10,000 | C |
| DIAMINOTOLUENE, 2,4- | 95-80-7 | 4.7 | G | 23 | G | 190,000 | C |
| DIAZINON | 333-41-5 | 150 | G | 2,200 | G | 10,000 | C |
| DIBENZO[A,H]ANTHRACENE | 53-70-3 | 1 | G | 22 | G | 190,000 | C |
| DIBENZOFURAN | 132-64-9 | 220 | G | 3,200 | G | 190,000 | C |
| DIBROMO-3-CHLOROPROPANE, 1,2- | 96-12-8 | 0.029 | N | 0.37 | N | [0.43] 0.42 | N |
| DIBROMOBENZENE, 1,4- | 106-37-6 | 2,200 | G | 32,000 | G | 190,000 | C |
| DIBROMOETHANE, 1,2- (ETHYLENE DIBROMIDE) | 106-93-4 | 0.74 | N | 3.7 | N | [4.3] 4.2 | N |
| DIBROMOMETHANE | 74-95-3 | [77] 76 | N | [320] 310 | N | [370] 360 | N |
| DIBUTYL PHTHALATE, N- | 84-74-2 | 10,000 | C | 10,000 | C | 10,000 | C |
| DICAMBA | 1918-00-9 | 6,600 | G | 96,000 | G | 190,000 | C |
| DICHLOROACETIC ACID | 76-43-6 | 370 | G | 1,800 | G | 10,000 | C |
| DICHLORO-2-BUTENE, 1,4- | 764-41-0 | 0.11 | N | [0.53] 0.52 | N | [0.61] 0.6 | N |
| DICHLORO-2-BUTENE, TRANS-1,4- | 110-57-6 | [0.1] 0.11 | N | 0.52 | N | 0.6 | N |
| DICHLOROBENZENE, 1,2- | 95-50-1 | 3,800 | N | 10,000 | C | 10,000 | C |

All concentrations in mg/kg
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**Appendix A**
**Table 3 – Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil**
**A. Direct Contact Numeric Values**

| REGULATED SUBSTANCE | CASRN | Residential 0-15 feet | | Nonresidential | | | |
|---|---|---|---|---|---|---|---|
| | | | | Surface Soil 0-2 feet | | Subsurface Soil 2-15 feet | |
| DICHLOROBENZENE, 1,3- | 541-73-1 | 10,000 | C | 10,000 | C | 10,000 | C |
| DICHLOROBENZENE, P- | 106-46-7 | 40 | N | 200 | N | 230 | N |
| DICHLOROBENZIDINE, 3,3'- | 91-94-1 | 41 | G | 200 | G | 190,000 | C |
| DICHLORODIFLUOROMETHANE (FREON 12) | 75-71-8 | 1,900 | N | 8,000 | N | 9,100 | N |
| DICHLOROETHANE, 1,1- | 75-34-3 | 280 | N | 1,400 | N | 1,600 | N |
| DICHLOROETHANE, 1,2- | 107-06-2 | 17 | N | [86] 85 | N | 98 | N |
| DICHLOROETHYLENE, 1,1- | 75-35-4 | 3,800 | N | 10,000 | C | 10,000 | C |
| DICHLOROETHYLENE, CIS-1,2- | 156-59-2 | 440 | G | 6,400 | G | 10,000 | C |
| DICHLOROETHYLENE, TRANS-1,2- | 156-60-5 | [1,100] 4,400 | [N] G | [4,800] 10,000 | [N] C | [5,500] 10,000 | [N] C |
| DICHLOROMETHANE (METHYLENE CHLORIDE) | 75-09-2 | 1,300 | G | 10,000 | C | 10,000 | C |
| DICHLOROPHENOL, 2,4- | 120-83-2 | 660 | G | 9,600 | G | 190,000 | C |
| DICHLOROPHENOXYACETIC ACID, 2,4- (2,4-D) | 94-75-7 | 2,200 | G | 32,000 | G | 190,000 | C |
| DICHLOROPROPANE, 1,2- | 78-87-5 | [45] 0.12 | N | [220] 0.6 | N | [260] 0.69 | N |
| DICHLOROPROPENE, 1,3- | 542-75-6 | 110 | N | [560] 550 | N | 640 | N |
| DICHLOROPROPIONIC ACID, 2,2- (DALAPON) | 75-99-0 | 6,600 | G | 10,000 | C | 10,000 | C |
| DICHLORVOS | 62-73-7 | 64 | G | 310 | G | 10,000 | C |
| DICYCLOPENTADIENE | 77-73-6 | [6] 5.7 | N | 24 | N | 27 | N |
| DIELDRIN | 60-57-1 | 1.2 | G | [6] 5.7 | G | 190,000 | C |
| DIETHANOLAMINE | 111-42-2 | 440 | G | 6,400 | G | 10,000 | C |
| DIETHYL PHTHALATE | 84-66-2 | 10,000 | C | 10,000 | C | 10,000 | C |
| DIFLUBENZURON | 35367-38-5 | 4,400 | G | 64,000 | G | 190,000 | C |
| DIISOPROPYL METHYLPHOSPHONATE | 1445-75-6 | 10,000 | C | 10,000 | C | 10,000 | C |
| DIMETHOATE | 60-51-5 | [44] 480 | G | [40] 7,000 | G | 190,000 | C |
| DIMETHOXYBENZIDINE, 3,3- | 119-90-4 | [1,300] 12 | G | [6,500] 57 | G | 190,000 | C |
| DIMETHRIN | 70-38-2 | 66,000 | G | 190,000 | C | 190,000 | C |
| DIMETHYLAMINOAZOBENZENE, P- | 60-11-7 | 4 | G | 20 | G | 190,000 | C |
| DIMETHYLANILINE, N,N- | 121-69-7 | 440 | G | [6,400] 3,400 | G | 10,000 | C |
| DIMETHYLBENZIDINE, 3,3- | 119-93-7 | 1.7 | G | 8.3 | G | 190,000 | C |
| DIMETHYL METHYLPHOSPHONATE | 756-79-6 | 10,000 | C | 10,000 | C | 10,000 | C |
| DIMETHYLPHENOL, 2,4- | 105-67-9 | 4,400 | G | 10,000 | C | 10,000 | C |
| DINITROBENZENE, 1,3- | 99-65-0 | 22 | G | 320 | G | 190,000 | C |
| DINITROPHENOL, 2,4- | 51-28-5 | 440 | G | 6,400 | G | 190,000 | C |
| DINITROTOLUENE, 2,4- | 121-14-2 | 60 | G | 290 | G | 190,000 | C |
| DINITROTOLUENE, 2,6- (2,6-DNT) | 606-20-2 | 12 | G | 61 | G | 190,000 | C |
| DINOSEB | 88-85-7 | 220 | G | 3,200 | G | 190,000 | C |
| DIOXANE, 1,4- | 123-91-1 | [58] 89 | N | [290] 440 | N | [330] 510 | N |
| DIPHENAMID | 957-51-7 | 6,600 | G | 96,000 | G | 190,000 | C |
| DIPHENYLAMINE | 122-39-4 | [5,500] 22,000 | G | [80,000] 190,000 | [G] C | 190,000 | C |
| DIPHENYLHYDRAZINE, 1,2- | 122-66-7 | [23] 2.1 | [G] N | [110] 10 | [G] N | [190,000] 12 | [C] N |
| DIQUAT | 85-00-7 | 480 | G | 7,000 | G | 190,000 | C |
| DISULFOTON | 298-04-4 | 8.8 | G | 130 | G | 10,000 | C |
| DITHIANE, 1,4- | 505-29-3 | 2,200 | G | 32,000 | G | 190,000 | C |
| DIURON | 330-54-1 | 440 | G | 6,400 | G | 190,000 | C |
| ENDOSULFAN | 115-29-7 | 1,300 | G | 19,000 | G | 190,000 | C |
| ENDOSULFAN I (ALPHA) | 959-98-8 | 1,300 | G | 19,000 | G | 190,000 | C |
| ENDOSULFAN II (BETA) | 33213-65-9 | 1,300 | G | 19,000 | G | 190,000 | C |
| ENDOSULFAN SULFATE | 1031-07-8 | 1,300 | G | 19,000 | G | 190,000 | C |

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**Appendix A**
**Table 3 – Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil**
**A. Direct Contact Numeric Values**

| REGULATED SUBSTANCE | CASRN | Residential 0-15 feet | | Nonresidential | | | |
|---|---|---|---|---|---|---|---|
| | | | | Surface Soil 0-2 feet | | Subsurface Soil 2-15 feet | |
| ENDOTHALL | 145-73-3 | 4,400 | G | 64,000 | G | 190,000 | C |
| ENDRIN | 72-20-8 | 66 | G | 960 | G | 190,000 | C |
| EPICHLOROHYDRIN | 106-89-8 | 19 | N | 79 | N | 91 | N |
| ETHEPHON | 16672-87-0 | 1,100 | G | 16,000 | G | 190,000 | C |
| ETHION | 563-12-2 | 110 | G | 1,600 | G | 10,000 | C |
| ETHOXYETHANOL, 2- (EGEE) | 110-80-5 | [3,900] 3,800 | N | 10,000 | C | 10,000 | C |
| ETHYL ACETATE | 141-78-6 | 1,300 | N | [5,600] 5,500 | N | [6,400] 6,300 | N |
| ETHYL ACRYLATE | 140-88-5 | 150 | N | [640] 630 | N | [730] 720 | N |
| ETHYL BENZENE | 100-41-4 | 180 | N | [890] 880 | N | 1,000 | N |
| ETHYL DIPROPYLTHIOCARBAMATE, S- (EPTC) | 759-94-4 | [5,500] 10,000 | [G] C | 10,000 | C | 10,000 | C |
| ETHYL ETHER | 60-29-7 | 10,000 | C | 10,000 | C | 10,000 | C |
| ETHYL METHACRYLATE | 97-63-2 | 5,700 | N | 10,000 | C | 10,000 | C |
| ETHYLENE CHLORHYDRIN | 107-07-3 | 4,400 | G | 10,000 | C | 10,000 | C |
| ETHYLENE GLYCOL | 107-21-1 | [7,700] 7,600 | N | 10,000 | C | 10,000 | C |
| ETHYLENE THIOUREA (ETU) | 96-45-7 | 18 | G | 260 | G | 190,000 | C |
| ETHYLP-NITROPHENYL PHENYLPHOSPHOROTHIOATE | 2104-64-5 | 2.2 | G | 32 | G | 190,000 | C |
| FENAMIPHOS | 22224-92-6 | 55 | G | 800 | G | 190,000 | C |
| FENVALERATE (PYDRIN) | 51630-58-1 | 5,500 | G | 10,000 | C | 10,000 | C |
| FLUOMETURON | 2164-17-2 | 2,900 | G | 42,000 | G | 190,000 | C |
| FLUORANTHENE | 206-44-0 | 8,800 | G | 130,000 | G | 190,000 | C |
| FLUORENE | 86-73-7 | 8,800 | G | 130,000 | G | 190,000 | C |
| FLUOROTRICHLOROMETHANE (FREON 11) | 75-69-4 | 10,000 | C | 10,000 | C | 10,000 | C |
| FONOFOS | 944-22-9 | 440 | G | 6,400 | G | 10,000 | C |
| FORMALDEHYDE | 50-00-0 | 34 | N | 170 | N | 200 | N |
| FORMIC ACID | 64-18-6 | [6] 5.7 | N | 24 | N | 27 | N |
| FOSETYL-AL | 39148-24-8 | 190,000 | C | 190,000 | C | 190,000 | C |
| FURAN | 110-00-9 | 220 | G | 3,200 | G | 10,000 | C |
| FURFURAL | 98-01-1 | [660] 530 | G | [4,000] 2,600 | [N] G | 4,500 | N |
| GLYPHOSATE | 1071-83-6 | 22,000 | G | 190,000 | C | 190,000 | C |
| HEPTACHLOR | 76-44-8 | [4] 4.1 | G | 20 | G | 190,000 | C |
| HEPTACHLOR EPOXIDE | 1024-57-3 | 2 | G | 10 | G | 190,000 | C |
| HEXACHLOROBENZENE | 118-74-1 | 12 | G | 57 | G | 190,000 | C |
| HEXACHLOROBUTADIENE | 87-68-3 | 220 | G | 1,200 | G | 10,000 | C |
| HEXACHLOROCYCLOPENTADIENE | 77-47-4 | 1,300 | G | 10,000 | C | 10,000 | C |
| HEXACHLOROETHANE | 67-72-1 | [44] 46 | N | [220] 230 | N | [260] 270 | N |
| HEXANE | 110-54-3 | 10,000 | C | 10,000 | C | 10,000 | C |
| HEXAZINONE | 51235-04-2 | 7,300 | G | 110,000 | G | 190,000 | C |
| HEXYTHIAZOX (SAVEY) | 78587-05-0 | 5,500 | G | 80,000 | G | 190,000 | C |
| HMX | 2691-41-0 | 11,000 | G | 160,000 | G | 190,000 | C |
| HYDRAZINE/HYDRAZINE SULFATE | 302-01-2 | [0.09] 0.091 | N | 0.45 | N | 0.52 | N |
| HYDROQUINONE | 123-31-9 | 310 | G | 1,500 | G | 190,000 | C |
| INDENO[1,2,3-CD]PYRENE | 193-39-5 | 3.5 | G | 76 | G | 190,000 | C |
| IPRODIONE | 36734-19-7 | [8,800] 420 | G | [130,000] 2,100 | G | 190,000 | C |
| ISOBUTYL ALCOHOL | 78-83-1 | 10,000 | C | 10,000 | C | 10,000 | C |

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C- Cap

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**Table 3 – Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil**
**A. Direct Contact Numeric Values**

| REGULATED SUBSTANCE | CASRN | Residential 0-15 feet | | Nonresidential Surface Soil 0-2 feet | | Nonresidential Subsurface Soil 2-15 feet | |
|---|---|---|---|---|---|---|---|
| ISOPHORONE | 78-59-1 | 10,000 | C | 10,000 | C | 10,000 | C |
| ISOPROPYL METHYLPHOSPHONATE | 1832-54-8 | 10,000 | C | 10,000 | C | 10,000 | C |
| KEPONE | 143-50-0 | 1.9 | G | 9.1 | G | 190,000 | C |
| MALATHION | 121-75-5 | 4,400 | G | 10,000 | C | 10,000 | C |
| MALEIC HYDRAZIDE | 123-33-1 | 110,000 | G | 190,000 | C | 190,000 | C |
| MANEB | 12427-38-2 | [1,100] 310 | G | [16,000] 1,500 | G | 190,000 | C |
| MERPHOS OXIDE | 78-48-8 | [6.6] 220 | G | [96] 3,200 | G | 10,000 | C |
| METHACRYLONITRILE | 126-98-7 | 22 | G | 320 | G | [2,800] 2,700 | N |
| METHAMIDOPHOS | 10265-92-6 | 11 | G | 160 | G | 190,000 | C |
| METHANOL | 67-56-1 | 10,000 | C | 10,000 | C | 10,000 | C |
| METHOMYL | 16752-77-5 | 5,500 | G | 80,000 | G | 190,000 | C |
| METHOXYCHLOR | 72-43-5 | 1,100 | G | 16,000 | G | 190,000 | C |
| METHOXYETHANOL, 2- | 109-86-4 | 380 | N | 1,600 | N | 1,800 | N |
| METHYL ACETATE | 79-20-9 | 10,000 | C | 10,000 | C | 10,000 | C |
| METHYL ACRYLATE | 96-33-3 | 380 | N | 1,600 | N | 1,800 | N |
| METHYL CHLORIDE | 74-87-3 | 250 | N | 1,200 | N | 1,400 | N |
| METHYL ETHYL KETONE | 78-93-3 | 10,000 | C | 10,000 | C | 10,000 | C |
| METHYL HYDRAZINE | 60-34-4 | 0.38 | N | 1.6 | N | 1.8 | N |
| METHYL ISOBUTYL KETONE | 108-10-1 | 10,000 | C | 10,000 | C | 10,000 | C |
| METHYL ISOCYANATE | 624-83-9 | 19 | N | 79 | N | 91 | N |
| METHYL N-BUTYL KETONE (2-HEXANONE) | 591-78-6 | 570 | N | 2,400 | N | [2,800] 2,700 | N |
| METHYL METHACRYLATE | 80-62-6 | 10,000 | C | 10,000 | C | 10,000 | C |
| METHYL METHANESULFONATE | 66-27-3 | 190 | G | 920 | G | 10,000 | C |
| METHYL PARATHION | 298-00-0 | 55 | G | 800 | G | 190,000 | C |
| METHYL STYRENE (MIXED ISOMERS) | 25013-15-4 | [770] 760 | N | [3,200] 3,100 | N | 3,600 | N |
| METHYL TERT-BUTYL ETHER (MTBE) | 1634-04-4 | 1,700 | N | [8,600] 8,500 | N | [9,900] 9,800 | N |
| METHYLCHLOROPHENOXYACETIC ACD (MCPA) | 94-74-6 | 110 | G | 1,600 | C | 190,000 | C |
| METHYLENE BIS(2-CHLOROANILINE), 4,4'- | 101-14-4 | 42 | G | 910 | G | 190,000 | C |
| METHYLNAPHTHALENE, 2- | 91-57-6 | [880] 57 | [G] N | [13,000] 240 | [G] N | [190,000] 270 | [C] N |
| METHYLSTYRENE, ALPHA | 98-83-9 | 10,000 | C | 10,000 | C | 10,000 | C |
| METOLACHLOR | 51218-45-2 | 10,000 | C | 10,000 | C | 10,000 | C |
| METRIBUZIN | 21087-64-9 | 5,500 | G | 80,000 | G | 190,000 | C |
| MEVINPHOS | 7786-34-7 | 5.5 | G | 80 | G | 190,000 | C |
| MONOCHLOROACETIC ACID | 79-11-8 | 440 | G | 6,400 | G | 190,000 | C |
| NAPHTHALENE | 91-20-3 | [160] 13 | [G] N | [760] 66 | [G] N | [190,000] 77 | [C] N |
| NAPHTHYLAMINE, 1- | 134-32-7 | 10 | G | 51 | G | 190,000 | C |
| NAPHTHYLAMINE, 2- | 91-59-8 | 10 | G | 51 | G | 190,000 | C |
| NAPROPAMIDE | 15299-99-7 | [22,000] 26,000 | G | 190,000 | C | 190,000 | C |
| NITROANILINE, O- | 88-74-4 | [2,200] 0.95 | [G] N | [32,000] 3.9 | [G] N | [190,000] 4.5 | [C] N |
| NITROANILINE, P- | 100-01-6 | 880 | G | 4,600 | G | 190,000 | C |
| NITROBENZENE | 98-95-3 | [440] 11 | [G] N | [6,400] 55 | [G] N | [10,000] 63 | [C] N |
| NITROGUANIDINE | 556-88-7 | 22,000 | G | 190,000 | C | 190,000 | C |

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**A. Direct Contact Numeric Values**

| REGULATED SUBSTANCE | CASRN | Residential 0-15 feet | | Nonresidential Surface Soil 0-2 feet | | Nonresidential Subsurface Soil 2-15 feet | |
|---|---|---|---|---|---|---|---|
| NITROPHENOL, 2- | 88-75-5 | 1,800 | G | 26,000 | G | 190,000 | C |
| NITROPHENOL, 4- | 100-02-7 | 1,800 | G | 26,000 | G | 190,000 | C |
| NITROPROPANE, 2- | 79-46-9 | 0.16 | N | 0.82 | N | 0.94 | N |
| NITROSODIETHYLAMINE, N- | 55-18-5 | 0.0041 | N | 0.051 | N | 0.059 | N |
| NITROSODIMETHYLAMINE, N- | 62-75-9 | 0.012 | N | 0.16 | N | 0.18 | N |
| NITROSO-DI-N-BUTYLAMINE, N- | 924-16-3 | [3.4] 0.28 | [G] N | [17] 1.4 | [G] N | [10,000] 1.6 | [C] N |
| NITROSODI-N-PROPYLAMINE, N- | 621-64-7 | [2.7] 0.22 | [G] N | [13] 1.1 | [G] N | [10,000] 1.3 | [C] N |
| NITROSODIPHENYLAMINE, N- | 86-30-6 | [3,800] 170 | [G] N | [19,000] 860 | [G] N | [190,000] 990 | [C] N |
| NITROSO-N-ETHYLUREA, N- | 759-73-9 | 0.16 | G | 3.4 | G | 190,000 | C |
| OCTYL PHTHALATE, DI-N- | 117-84-0 | 2,200 | G | 10,000 | C | 10,000 | C |
| OXAMYL (VYDATE) | 23135-22-0 | 5,500 | G | 80,000 | G | 190,000 | C |
| PARAQUAT | 1910-42-5 | 990 | G | 14,000 | G | 190,000 | C |
| PARATHION | 56-38-2 | [1,300] 6.6 | G | [10,000] 96 | [C] G | 10,000 | C |
| **PCBS, TOTAL (POLYCHLORINATED BIPHENYLS) (AROCLORS)** | **1336-36-3** | **9.3** | **G** | **46** | **G** | **190,000** | **C** |
| PCB-1016 (AROCLOR) | 12674-11-2 | [9] 15 | G | [46] 220 | G | 10,000 | C |
| PCB-1221 (AROCLOR) | 11104-28-2 | [9] 4.7 | [G] N | [46] 23 | [G] N | [10,000] 27 | [C] N |
| PCB-1232 (AROCLOR) | 11141-16-5 | [9] 9.3 | G | 46 | G | 10,000 | C |
| PCB-1242 (AROCLOR) | 53469-21-9 | [9] 9.3 | G | 46 | G | 10,000 | C |
| PCB-1248 (AROCLOR) | 12672-29-6 | 9.3 | G | 46 | G | 10,000 | C |
| PCB-1254 (AROCLOR) | 11097-69-1 | 4.4 | G | [46] 64 | G | 10,000 | C |
| PCB-1260 (AROCLOR) | 11096-82-5 | [9] 9.3 | G | 46 | G | 190,000 | C |
| PEBULATE | 1114-71-2 | 10,000 | C | 10,000 | C | 10,000 | C |
| PENTACHLOROBENZENE | 608-93-5 | 180 | G | 2,600 | G | 190,000 | C |
| PENTACHLOROETHANE | 76-01-7 | 210 | G | 1,000 | G | 10,000 | C |
| PENTACHLORONITROBENZENE | 82-68-8 | 72 | G | 350 | G | 190,000 | C |
| PENTACHLOROPHENOL | 87-86-5 | 47 | G | 230 | G | 190,000 | C |
| **PERFLUOROBUTANE SULFONATE (PFBS)** | **375-73-5** | **4,400** | **G** | **10,000** | **C** | **10,000** | **C** |
| **PERFLUOROOCTANE SULFONATE (PFOS)** | **1763-23-1** | **4.4** | **G** | **64** | **G** | **190,000** | **C** |
| **PERFLUOROOCTANOIC ACID (PFOA)** | **335-67-1** | **4.4** | **G** | **64** | **G** | **190,000** | **C** |
| PHENACETIN | 62-44-2 | 8,500 | G | 41,000 | G | 190,000 | C |
| PHENANTHRENE | 85-01-8 | 66,000 | G | 190,000 | C | 190,000 | C |
| PHENOL | 108-95-2 | 3,800 | N | 16,000 | N | 18,000 | N |
| PHENYL MERCAPTAN | 108-98-5 | 220 | G | 3,200 | G | 10,000 | C |
| PHENYLENEDIAMINE, M- | 108-45-2 | 1,300 | G | 19,000 | G | 190,000 | C |
| PHENYLPHENOL, 2- | 90-43-7 | [9,800] 9,600 | G | [48,000] 47,000 | G | 190,000 | C |
| PHORATE | 298-02-2 | 44 | G | 640 | G | 10,000 | C |
| PHTHALIC ANHYDRIDE | 85-44-9 | [190,000] 380 | [C] N | [190,000] 1,600 | [C] N | [190,000] 1,800 | [C] N |
| PICLORAM | 1918-02-1 | 15,000 | G | 190,000 | C | 190,000 | C |
| | | | | | | | |
| PROMETON | 1610-18-0 | 3,300 | G | 48,000 | G | 190,000 | C |
| PRONAMIDE | 23950-58-5 | 17,000 | G | 190,000 | C | 190,000 | C |
| **PROPACHLOR** | **1918-16-7** | **2,900** | **G** | **42,000** | **G** | **190,000** | **C** |
| PROPANIL | 709-98-8 | 1,100 | G | 16,000 | G | 190,000 | C |
| PROPANOL, 2- (ISOPROPYL ALCOHOL) | 67-63-0 | 3,800 | N | 10,000 | C | 10,000 | C |

All concentrations in mg/kg
G – Ingestion
N- Inhalation
C- Cap

**Appendix A**
**Table 3 – Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil**
**A. Direct Contact Numeric Values**

| REGULATED SUBSTANCE | CASRN | Residential 0-15 feet | | Nonresidential | | | |
|---|---|---|---|---|---|---|---|
| | | | | Surface Soil 0-2 feet | | Subsurface Soil 2-15 feet | |
| PROPAZINE | 139-40-2 | 4,400 | G | 10,000 | C | 10,000 | C |
| PROPHAM | 122-42-9 | 4,400 | G | 64,000 | G | 190,000 | C |
| PROPYLBENZENE, N- | 103-65-1 | 10,000 | C | 10,000 | C | 10,000 | C |
| PROPYLENE OXIDE | 75-56-9 | 78 | G | 380 | G | 690 | N |
| PYRENE | 129-00-0 | 6,600 | G | 96,000 | G | 190,000 | C |
| **PYRETHRUM** | **8003-34-7** | **220** | **G** | **3,200** | **G** | **10,000** | **C** |
| PYRIDINE | 110-86-1 | 220 | G | 3,200 | G | 10,000 | C |
| QUINOLINE | 91-22-5 | [6] **6.2** | G | 30 | G | 10,000 | C |
| QUIZALOFOP (ASSURE) | 76578-14-8 | 2,000 | G | 29,000 | G | 190,000 | C |
| RDX | 121-82-4 | [170] **230** | G | [830] **1,100** | G | 190,000 | C |
| RESORCINOL | 108-46-3 | 190,000 | C | 190,000 | C | 190,000 | C |
| RONNEL | 299-84-3 | 11,000 | G | 160,000 | G | 190,000 | C |
| SIMAZINE | 122-34-9 | 160 | G | 760 | G | 190,000 | C |
| STRYCHNINE | 57-24-9 | 66 | G | 960 | G | 190,000 | C |
| STYRENE | 100-42-5 | 10,000 | C | 10,000 | C | 10,000 | C |
| TEBUTHIURON | 34014-18-1 | 15,000 | G | 190,000 | C | 190,000 | C |
| TERBACIL | 5902-51-2 | 2,900 | G | 42,000 | G | 190,000 | C |
| TERBUFOS | 13071-79-9 | 5.5 | G | 80 | G | 10,000 | C |
| TETRACHLOROBENZENE, 1,2,4,5- | 95-94-3 | 66 | G | 960 | G | 190,000 | C |
| TETRACHLORODIBENZO-P-DIOXIN, 2,3,7,8- (TCDD) | 1746-01-6 | 0.00014 | G | 0.0007 | G | 190,000 | C |
| TETRACHLOROETHANE, 1,1,1,2- | 630-20-6 | 60 | N | 300 | N | 340 | N |
| TETRACHLOROETHANE, 1,1,2,2- | 79-34-5 | [7.7] **7.6** | N | 38 | N | 44 | N |
| TETRACHLOROETHYLENE (PCE) | 127-18-4 | [770] **760** | N | 3,200 | N | 3,600 | N |
| TETRACHLOROPHENOL, 2,3,4,6- | 58-90-2 | 6,600 | G | 96,000 | G | 190,000 | C |
| TETRAETHYL LEAD | 78-00-2 | 0.022 | G | 0.32 | G | 10,000 | C |
| TETRAETHYLDITHIOPYROPHOSPHATE | 3689-24-5 | 110 | G | 1,600 | G | 10,000 | C |
| TETRAHYDROFURAN | 109-99-9 | [240] **230** | N | [1,200] **1,100** | N | [1,400] **1,300** | N |
| THIOFANOX | 39196-18-4 | 66 | G | 960 | G | 190,000 | C |
| THIRAM | 137-26-8 | [1,100] **3,300** | G | [16,000] **48,000** | G | 190,000 | C |
| TOLUENE | 108-88-3 | 10,000 | C | 10,000 | C | 10,000 | C |
| TOLUIDINE, M- | 108-44-1 | 1,200 | G | 5,700 | G | 10,000 | C |
| TOLUIDINE, O- | 95-53-4 | 1,200 | G | 5,700 | G | 10,000 | C |
| TOLUIDINE, P- | 106-49-0 | 620 | G | 3,000 | G | 190,000 | C |
| TOXAPHENE | 8001-35-2 | 17 | G | 83 | G | 190,000 | C |
| TRIALLATE | 2303-17-5 | [2,900] **26** | G | [10,000] **130** | [C] **G** | 10,000 | C |
| TRIBROMOMETHANE (BROMOFORM) | 75-25-2 | [410] **400** | N | 2,000 | N | 2,300 | N |
| TRICHLORO-1,2,2-TRIFLUOROETHANE, 1,1,2- | 76-13-1 | 10,000 | C | 10,000 | C | 10,000 | C |
| TRICHLOROACETIC ACID | 76-03-9 | 270 | G | 1,300 | G | 190,000 | C |
| TRICHLOROBENZENE, 1,2,4- | 120-82-1 | [640] **39** | [G] **N** | [3,100] **160** | [G] **N** | [10,000] **190** | [C] **N** |
| TRICHLOROBENZENE, 1,3,5- | 108-70-3 | [1,300] **46** | [G] **N** | [19,000] **190** | [G] **N** | [190,000] **230** | [C] **N** |
| TRICHLOROETHANE, 1,1,1- | 71-55-6 | 10,000 | C | 10,000 | C | 10,000 | C |
| TRICHLOROETHANE, 1,1,2- | 79-00-5 | [4] **3.8** | N | 16 | N | 18 | N |
| TRICHLOROETHYLENE (TCE) | 79-01-6 | 38 | N | 160 | N | 180 | N |
| TRICHLOROPHENOL, 2,4,5- | 95-95-4 | 22,000 | G | 190,000 | C | 190,000 | C |
| TRICHLOROPHENOL, 2,4,6- | 88-06-2 | 220 | G | 3,200 | G | 190,000 | C |
| TRICHLOROPHENOXYACETIC ACID, 2,4,5- (2,4,5-T) | 93-76-5 | 2,200 | G | 32,000 | G | 190,000 | C |

All concentrations in mg/kg
G – Ingestion
N- Inhalation
C- Cap

**Appendix A**
**Table 3 – Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil**
**A. Direct Contact Numeric Values**

| REGULATED SUBSTANCE | CASRN | Residential 0-15 feet | | Nonresidential | | | |
|---|---|---|---|---|---|---|---|
| | | | | Surface Soil 0-2 feet | | Subsurface Soil 2-15 feet | |
| TRICHLOROPHENOXYPROPIONIC ACID, 2,4,5-(2,4,5-TP)(SILVEX) | 93-72-1 | 1,800 | G | 26,000 | G | 190,000 | C |
| TRICHLOROPROPANE, 1,1,2- | 598-77-6 | 1,100 | G | 10,000 | C | 10,000 | C |
| TRICHLOROPROPANE, 1,2,3- | 96-18-4 | 0.14 | G | 3.0 | G | [28] 27 | N |
| ~~TRICHLOROPROPENE, 1,2,3-~~ | ~~96-19-5~~ | ~~5.7~~ | ~~N~~ | ~~24~~ | ~~N~~ | 27 | N |
| TRIETHYLAMINE | 121-44-8 | 130 | N | [560] 550 | N | [640] 630 | N |
| TRIETHYLENE GLYCOL | 112-27-6 | 10,000 | C | 10,000 | C | 10,000 | C |
| TRIFLURALIN | 1582-09-8 | 1,700 | G | 12,000 | G | 190,000 | C |
| TRIMETHYLBENZENE, 1,3,4-(TRIMETHYLBENZENE, 1,2,4-) | 95-63-6 | [130] 1,100 | N | [560] 4,700 | N | [640] 5,400 | N |
| TRIMETHYLBENZENE, 1,3,5- | 108-67-8 | [2,200] 1,100 | [G] N | [10,000] 4,700 | [C] N | [10,000] 5,400 | [C] N |
| TRINITROGLYCEROL (NITROGLYCERIN) | 55-63-0 | 22 | G | 320 | G | 10,000 | C |
| TRINITROTOLUENE, 2,4,6- | 118-96-7 | 110 | G | 1,600 | G | 190,000 | C |
| VINYL ACETATE | 108-05-4 | [3,900] 3,800 | N | 10,000 | C | 10,000 | C |
| VINYL BROMIDE (BROMOETHENE) | 593-60-2 | 14 | N | 70 | N | 80 | N |
| VINYL CHLORIDE | 75-01-4 | [0.9] 0.93 | G | 61 | G | [280] 290 | N |
| WARFARIN | 81-81-2 | 66 | G | 960 | G | 190,000 | C |
| XYLENES (TOTAL) | 1330-20-7 | 1,900 | N | [8,000] 7,900 | N | 9,100 | N |
| ZINEB | 12122-67-7 | 11,000 | G | 160,000 | G | 190,000 | C |

All concentrations in mg/kg
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**Table 3 – Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil**
**B. Soil to Groundwater Numeric Values[1]**

| REGULATED SUBSTANCE | CASRN | Used Aquifers | | | | | | | | | | Nonuse Aquifers | | | | | Soil Buffer Distance (feet) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | TDS > 2500 mg/L | | | | Residential | | | Nonresidential | | |
| | | Residential | | Nonresidential | | Residential | | Nonresidential | | | | | | | |
| | | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | |
| ACENAPHTHENE | 83-32-9 | [250] 210 | [3,100] 2,600 E | 380 | 4,700 E | 380 | 4,700 E | 380 | 4,700 E | 380 | 4,700 E | | 380 | 4,700 E | | 15 |
| ACENAPHTHYLENE | 208-96-8 | [250] 210 | [2,800] 2,400 E | [700] 580 | [8,000] 6,600 E | 1,600 | 18,000 E | 1,600 | 18,000 E | 1,600 | 18,000 E | | 1,600 | 18,000 E | | 15 |
| ACEPHATE | 30560-19-1 | [8.4] 4.2 | [1.0] 0.5 E | [39] 12 | [4.6] 1.4 E | [840] 420 | [100] 50 E | [3,900] 1,200 | [460] 140 E | [8.4] 4.2 | [1.0] 0.5 E | | [39] 12 | [4.6] 1.4 E | | NA |
| ACETALDEHYDE | 75-07-0 | 1.9 | 0.23 E | 7.9 | 0.96 E | 190 | 23 E | 790 | 96 E | 1.9 | 0.23 E | | 7.9 | 0.96 E | | NA |
| ACETONE | 67-64-1 | [3,800] 3,100 | [430] 350 E | [10,000] 8,800 | [1,200] 980 E | 10,000 | 10,000 C | 10,000 | 10,000 C | 10,000 | [4,300] 3,500 E | | 10,000 | [10,000] 9,800 | [C] E | NA |
| ACETONITRILE | 75-05-8 | 13 | 1.5 E | 53 | 6 E | 1,300 | 150 E | 5,300 | 600 E | 130 | 15 E | | 530 | 60 E | | NA |
| ACETOPHENONE | 98-86-2 | [420] 350 | [230] 190 E | [1,200] 970 | [640] 520 E | 10,000 | 10,000 C | 10,000 | 10,000 C | [420] 350 | [230] 190 E | | [1,200] 970 | [640] 520 E | | NA |
| ACETYLAMINOFLUORENE, 2- (2AAF) | 53-96-3 | [0.019] 0.017 | [0.08] 0.07 E | [0.089] 0.072 | [0.37] 0.3 E | [1.9] 1.7 | [8] 7 E | [8.9] 7.2 | [37] 30 E | [19] 17 | [78] 70 E | | [89] 72 | [370] 300 E | | 20 |
| ACROLEIN | 107-02-8 | 0.0042 | 0.00047 E | 0.018 | 0.002 E | 0.42 | 0.047 E | 1.8 | 0.2 E | 0.042 | 0.0047 E | | 0.18 | 0.02 E | | NA |
| ACRYLAMIDE | 79-06-1 | 0.019 | 0.0033 E | 0.25 | 0.043 E | 1.9 | 0.33 E | 25 | 4.3 E | 0.019 | 0.0033 E | | 0.25 | 0.043 E | | NA |
| ACRYLIC ACID | 79-10-7 | 0.21 | 0.039 E | 0.88 | 0.16 E | 21 | 3.9 E | 88 | 16 E | 21 | 3.9 E | | 88 | 16 E | | NA |
| ACRYLONITRILE | 107-13-1 | 0.072 | 0.01 E | 0.37 | 0.051 E | 7.2 | 1 E | 37 | 5.1 E | 7.2 | 1 E | | 37 | 5.1 E | | NA |
| ALACHLOR | 15972-60-8 | 0.2 | 0.077 E | 0.2 | 0.077 E | 20 | 7.7 E | 20 | 7.7 E | 0.2 | 0.077 E | | 0.2 | 0.077 E | | NA |
| ALDICARB | 116-06-3 | 0.3 | 0.05 E | 0.3 | 0.05 E | 30 | 5 E | 30 | 5 E | 300 | 50 E | | 300 | 50 E | | NA |
| ALDICARB SULFONE | 1646-88-4 | 0.2 | 0.027 E | 0.2 | 0.027 E | 20 | 2.7 E | 20 | 2.7 E | 0.2 | 0.027 E | | 0.2 | 0.027 E | | NA |
| ALDICARB SULFOXIDE | 1646-87-3 | 0.4 | 0.045 E | 0.4 | 0.045 E | 40 | 4.5 E | 40 | 4.5 E | 0.4 | 0.045 E | | 0.4 | 0.045 E | | NA |
| ALDRIN | 309-00-2 | [0.0043] 0.0038 | [0.52] 0.46 E | [0.02] 0.016 | [2.4] 1.9 E | [0.43] 0.38 | [52] 46 E | [2.0] 1.6 | [240] 190 E | 2 | 240 E | | 2 | 240 E | | 10 |
| ALLYL ALCOHOL | 107-18-6 | 0.021 | 0.0025 E | 0.088 | 0.01 E | 2.1 | 0.25 E | [9] 8.8 | 1 E | 2.1 | 0.25 E | | [9] 8.8 | 1 E | | NA |
| AMETRYN | 834-12-8 | 6 | 6.5 E | 6 | 6.5 E | 600 | 650 E | 600 | 650 E | 6 | 6.5 E | | 6 | 6.5 E | | NA |
| AMINOBIPHENYL, 4- | 92-67-1 | [0.0035] 0.0031 | [0.0014] 0.0012 E | [0.016] 0.013 | [0.0062] 0.005 E | [0.35] 0.31 | [0.14] 0.12 E | [1.6] 1.3 | [0.62] 0.5 E | [3.5] 3.1 | [1.4] 1.2 E | | [16] 13 | [6.2] 5 E | | NA |

[1] For other options see Section 250.308
All concentrations in mg/kg
E – Number calculated by the soil to groundwater equation is section 250.308
C – Cap
NA – The soil buffer distance option is not available for this substance
**[THMs – The values listed for trihalomethanes (THMs) are the total for all THMs combined.]**
**[HAAs – The values listed for haloacetic acids (HAAs) are the total for all HAAs combined.]**

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**B. Soil to Groundwater Numeric Values[1]**

| REGULATED SUBSTANCE | CASRN | Used Aquifers | | | | | | | | | | Nonuse Aquifers | | | | | Soil Buffer Distance (feet) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | | TDS > 2500 mg/L | | | | | | | | | | |
| | | Residential | | | Nonresidential | | Residential | | | Nonresidential | | Residential | | | Nonresidential | | |
| | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | |
| AMITROLE | 61-82-5 | [0.078] 0.069 | [0.032] 0.028 | E | [0.36] 0.29 | [0.15] 0.12 | [8] 6.9 | [3.2] 2.8 | E | [36] 29 | [15] 12 | E | [78] 69 | [32] 28 | E | [360] 290 | [150] 120 | E | NA |
| AMMONIA | 7664-41-7 | 3,000 | 360 | E | 3,000 | 360 | E | 10,000 | 10,000 | C | 10,000 | 10,000 | C | 3,000 | 360 | E | 3,000 | 360 | E | NA |
| AMMONIUM SULFAMATE | 7773-06-0 | 200 | 24 | E | 200 | 24 | E | 20,000 | 2,400 | E | 20,000 | 2,400 | E | 200 | 24 | E | 200 | 24 | E | NA |
| ANILINE | 62-53-3 | 0.21 | 0.12 | E | 0.88 | 0.52 | E | 21 | 12 | E | 88 | 52 | E | 0.21 | 0.12 | E | 0.88 | 0.52 | E | NA |
| ANTHRACENE | 120-12-7 | 6.6 | 350 | E | 6.6 | 350 | E | 6.6 | 350 | E | 6.6 | 350 | E | 6.6 | 350 | E | 6.6 | 350 | E | 1 |
| ATRAZINE | 1912-24-9 | 0.3 | 0.13 | E | 0.3 | 0.13 | E | 30 | 13 | E | 30 | 13 | E | 0.3 | 0.13 | E | 0.3 | 0.13 | E | NA |
| AZINPHOS-METHYL (GUTHION) | 86-50-0 | [13] 5.2 | [15] 5.9 | E | [35] 15 | [40] 17 | E | [1,300] 520 | [1,500] 590 | E | [3,200] 1,500 | [3,600] 1,700 | E | [13] 5.2 | [15] 5.9 | E | [35] 15 | [40] 17 | E | NA |
| BAYGON (PROPOXUR) | 114-26-1 | 0.3 | 0.057 | E | 0.3 | 0.057 | E | 30 | 5.7 | E | 30 | 5.7 | E | 300 | 57 | E | 300 | 57 | E | NA |
| BENOMYL | 17804-35-2 | [200] 27 | [970] 130 | E | [200] 110 | [970] 530 | E | 200 | 970 | E | 200 | 970 | E | [200] 27 | [970] 130 | E | [200] 110 | [970] 530 | E | 20 |
| BENTAZON | 25057-89-0 | 20 | 2.9 | E | 20 | 2.9 | E | 2,000 | 290 | E | 2,000 | 290 | E | 20 | 2.9 | E | 20 | 2.9 | E | NA |
| BENZENE | 71-43-2 | 0.5 | 0.13 | E | 0.5 | 0.13 | E | 50 | 13 | E | 50 | 13 | E | 50 | 13 | E | 50 | 13 | E | NA |
| BENZIDINE | 92-87-5 | [0.000098] 0.000092 | [0.13] 0.12 | E | [0.0015] 0.0012 | [2] 1.6 | E | [0.0098] 0.0092 | [13] 12 | E | [0.15] 0.12 | [200] 160 | E | [0.098] 0.092 | [130] 120 | E | [1.5] 1.2 | [2,000] 1,600 | E | 5 |
| BENZO[A]ANTHRACENE | 56-55-3 | [0.032] 0.03 | [28] 26 | E | [0.49] 0.39 | [430] 340 | E | 1.1 | 960 | E | 1.1 | 960 | E | 1.1 | 960 | E | 1.1 | 960 | E | 5 |
| BENZO[A]PYRENE | 50-32-8 | 0.02 | 46 | E | 0.02 | 46 | E | 0.38 | 860 | E | 0.38 | 860 | E | 0.38 | 860 | E | 0.38 | 860 | E | 5 |
| BENZO[B]FLUORANTHENE | 205-99-2 | [0.019] 0.018 | [26] 25 | E | 0.12 | 170 | E | 0.12 | 170 | E | 0.12 | 170 | E | 0.12 | 170 | E | 0.12 | 170 | E | 5 |
| BENZO[GHI]PERYLENE | 191-24-2 | 0.026 | 180 | E | 0.026 | 180 | E | 0.026 | 180 | E | 0.026 | 180 | E | 0.026 | 180 | E | 0.026 | 180 | E | 5 |
| BENZO[K]FLUORANTHENE | 207-08-9 | [0.019] 0.018 | [210] 200 | E | 0.055 | 610 | E | 0.055 | 610 | E | 0.055 | 610 | E | 0.055 | 610 | E | 0.055 | 610 | E | 5 |
| BENZOIC ACID | 65-85-0 | [17,000] 14,000 | [3,200] 2,700 | E | [47,000] 39,000 | [9,000] 7,500 | E | 190,000 | 52,000 | E | 190,000 | 52,000 | E | [17,000] 14,000 | [3,200] 2,700 | E | [47,000] 39,000 | [9,000] 7,500 | E | NA |
| BENZOTRICHLORIDE | 98-07-7 | [0.0056] 0.005 | [0.014] 0.012 | E | [0.026] 0.021 | [0.063] 0.051 | E | [0.56] 0.5 | [1.4] 1.2 | E | [3] 2.1 | [6.3] 5.1 | E | [5.6] 0.5 | [14] 1.2 | E | [26] 2.1 | [63] 5.1 | E | 30 |

[1] For other options see Section 250.308
All concentrations in mg/kg
E – Number calculated by the soil to groundwater equation is section 250.308
C – Cap
NA – The soil buffer distance option is not available for this substance
**[THMs – The values listed for trihalomethanes (THMs) are the total for all THMs combined.]**
**[HAAs – The values listed for haloacetic acids (HAAs) are the total for all HAAs combined.]**

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| REGULATED SUBSTANCE | CASRN | Used Aquifers | | | | | | | | | | Nonuse Aquifers | | | | | Soil Buffer Distance (feet) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | | | TDS > 2500 mg/L | | | | | | | | | |
| | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | |
| | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | |
| BENZYL ALCOHOL | 100-51-6 | [420] 350 | [150] 130 | E | [1,200] 970 | [430] 350 | E | 10,000 | 10,000 | C | 10,000 | 10,000 | C | [420] 350 | [150] 130 | E | [1,200] 970 | [430] 350 | E | NA |
| BENZYL CHLORIDE | 100-44-7 | 0.1 | 0.059 | E | 0.51 | 0.3 | E | 10 | 5.9 | E | 51 | 30 | E | 10 | 5.9 | E | 51 | 30 | E | NA |
| BETA PROPIOLACTONE | 57-57-8 | 0.0012 | 0.00015 | E | 0.006 3 | 0.0007 6 | E | [0.1] 0.12 | 0.015 | E | 0.63 | 0.076 | E | 0.012 | 0.0015 | E | 0.063 | 0.0076 | E | NA |
| BHC, ALPHA | 319-84-6 | [0.012] 0.01 | [0.055] 0.046 | E | [0.054] 0.043 | [0.25] 0.2 | E | 1 | [5.5] 4.6 | E | [5.4] 4.3 | [25] 20 | E | [12] 10 | [55] 46 | E | [54] 43 | [250] 200 | E | 20 |
| BHC, BETA- | 319-85-7 | [0.041] 0.036 | [0.24] 0.21 | E | [0.19] 0.15 | [1.1] 0.88 | E | [4.1] 3.6 | [24] 21 | E | 10 | 59 | E | 10 | 59 | E | 10 | 59 | E | 15 |
| BHC, GAMMA (LINDANE) | 58-89-9 | 0.02 | 0.072 | E | 0.02 | 0.072 | E | 2 | 7.2 | E | 2 | 7.2 | E | 20 | 72 | E | 20 | 72 | E | 20 |
| BIPHENYL, 1,1- | 92-52-4 | [9.1] 0.084 | [40] 0.37 | E | [43] 0.35 | [190] 1.5 | E | [720] 8.4 | [3,100] 37 | E | [720] 35 | [3,100] 150 | E | [720] 8.4 | [3,100] 37 | E | [720] 35 | [3,100] 150 | E | 20 |
| BIS(2-CHLOROETHOXY) METHANE | 111-91-1 | [13] 10 | [3.4] 2.6 | E | [35] 29 | [9.2] 7.6 | E | [1,300] 1,000 | [340] 260 | E | [3,500] 2,900 | [920] 760 | E | [13] 10 | [3.4] 2.6 | E | [35] 29 | [9.2] 7.6 | E | NA |
| BIS(2-CHLOROETHYL)ETHER | 111-44-4 | 0.015 | 0.0045 | E | 0.076 | 0.023 | E | 1.5 | 0.45 | E | 7.6 | 2.3 | E | 1.5 | 0.45 | E | 7.6 | 2.3 | E | NA |
| BIS(2-CHLORO-ISOPROPYL)ETHER | 108-60-1 | 30 | 8 | E | 30 | 8 | E | 3,000 | 800 | E | 3,000 | 800 | E | 3,000 | 800 | E | 3,000 | 800 | E | NA |
| BIS(CHLOROMETHYL)ETHER | 542-88-1 | 0.000079 | 0.000012 | E | 0.0004 | 0.00006 | E | 0.0079 | [0.001] 0.0012 | E | 0.04 | 0.006 | E | 0.0079 | [0.001] 0.0012 | E | 0.04 | 0.006 | E | NA |
| BIS(2-ETHYLHEXYL] PHTHALATE | 117-81-7 | 0.6 | 130 | E | 0.6 | 130 | E | 29 | 6,300 | E | 29 | 6,300 | E | 29 | 6,300 | E | 29 | 6,300 | E | 10 |
| BISPHENOL A | 80-05-7 | [210] 170 | [810] 660 | E | [580] 490 | [2,200] 1,900 | E | 12,000 | 46,000 | E | 12,000 | 46,000 | E | 12,000 | 46,000 | E | 12,000 | 46,000 | E | 20 |
| BROMACIL | 314-40-9 | 7 | 1.8 | E | 7 | 1.8 | E | 700 | 180 | E | 700 | 180 | E | 7 | 1.8 | E | 7 | 1.8 | E | NA |
| BROMOBENZENE | 108-86-1 | 0.006 | 0.0047 | E | 0.006 | 0.0047 | E | 0.6 | 0.47 | E | 0.6 | 0.47 | E | 0.006 | 0.0047 | E | 0.006 | 0.0047 | E | NA |
| BROMOCHLOROMETHANE | 74-97-5 | 9 | 1.6 | E | 9 | 1.6 | E | 900 | 160 | E | 900 | 160 | E | 9 | 1.6 | E | 9 | 1.6 | E | NA |
| BROMODICHLORO METHANE (THM) | 75-27-4 | 8 | 2.7 | E | 8 | 2.7 | E | 800 | 270 | E | 800 | 270 | E | 8 | 2.7 | E | 8 | 2.7 | E | NA |
| BROMOMETHANE | 74-83-9 | 1 | 0.54 | E | 1 | 0.54 | E | 100 | 54 | E | 100 | 54 | E | 100 | 54 | E | 100 | 54 | E | NA |
| BROMOXYNIL | 1689-84-5 | [83] 0.63 | [71] 0.54 | E | [230] 2.6 | [200] 2.2 | E | [8,300] 63 | [7,100] 54 | E | [13,000] 260 | [11,000] 220 | E | [83] 0.63 | [71] 0.54 | E | [230] 2.6 | [200] 2.2 | E | NA |
| BROMOXYNIL OCTANOATE | 1689-99-2 | [8] 0.63 | [360] 28 | E | [8] 2.6 | [360] 120 | E | 8 | 360 | E | 8 | 360 | E | 8 | 360 | E | 8 | 360 | E | 15 |

[1] For other options see Section 250.308
All concentrations in mg/kg
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C – Cap
NA – The soil buffer distance option is not available for this substance
**[THMs – The values listed for trihalomethanes (THMs) are the total for all THMs combined.]**
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| REGULATED SUBSTANCE | CASRN | Used Aquifers | | | | | | | | | | Nonuse Aquifers | | | | | Soil Buffer Distance (feet) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | TDS > 2500 mg/L | | | | | | | | | | | |
| | | Residential | | Nonresidential | | Residential | | Nonresidential | | | | Residential | | Nonresidential | | | |
| | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | |
| BUTADIENE, 1,3- | 106-99-0 | [0.021] 0.11 | [0.0086] 0.045 | E | [0.1] 0.45 | [0.041] 0.19 | E | [2.1] 11 | [0.86] 4.5 | E | [10] 45 | [4.1] 19 | E | [2.1] 11 | [0.86] 4.5 | E | [10] 45 | [4.1] 19 | E | NA |
| BUTYL ALCOHOL, N- | 71-36-3 | [420] 350 | [50] 42 | E | [1,200] 970 | [140] 120 | E | 10,000 | [5,000] 4,200 | E | 10,000 | 10,000 | C | [4,200] 3,500 | [500] 420 | E | [10,000] 9,700 | [1,400] 1,200 | E | NA |
| BUTYLATE | 2008-41-5 | 40 | 58 | E | 40 | 58 | E | 4,000 | 5,800 | E | 4,000 | 5,800 | E | 40 | 58 | E | 40 | 58 | E | 30 |
| BUTYLBENZENE, N- | 104-51-8 | [210] 170 | [1,300] 1,100 | E | [580] 490 | [3,700] 3,100 | E | 1,500 | 9,500 | E | 1,500 | 9,500 | E | [210] 170 | [1,300] 1,100 | E | [580] 490 | [3,700] 3,100 | E | 15 |
| BUTYLBENZENE, SEC- | 135-98-8 | [420] 350 | [980] 820 | E | [1,200] 970 | [2,800] 2,300 | E | 1,700 | 4,000 | E | 1,700 | 4,000 | E | [420] 350 | [980] 820 | E | [1,200] 970 | [2,800] 2,300 | E | 30 |
| BUTYLBENZENE, TERT- | 98-06-6 | [420] 350 | [760] 630 | E | [1,200] 970 | [2,200] 1,800 | E | 3,000 | 5,400 | E | 3,000 | 5,400 | E | [420] 350 | [760] 630 | E | [1,200] 970 | [2,200] 1,800 | E | 30 |
| BUTYLBENZYL PHTHALATE | 85-68-7 | [38] 34 | [3,200] 2,900 | E | [180] 140 | 10,000 | C | 270 | 10,000 | C | 270 | 10,000 | C | 270 | 10,000 | C | 270 | 10,000 | C | 10 |
| CAPTAN | 133-06-2 | [32] 28 | [20] 17 | E | 50 | 31 | E | 50 | 31 | E | 50 | 31 | E | 50 | 31 | E | 50 | 31 | E | NA |
| CARBARYL | 63-25-2 | [420] 350 | [250] 210 | E | [1,200] 970 | [700] 570 | E | 12,000 | 7,000 | E | 12,000 | 7,000 | E | 12,000 | 7,000 | E | 12,000 | 7,000 | E | NA |
| CARBAZOLE | 86-74-8 | [3.7] 3.3 | [24] 21 | E | [17] 14 | [110] 89 | E | 120 | 760 | E | 120 | 760 | E | [4] 3.3 | [24] 21 | E | [17] 14 | [110] 89 | E | 15 |
| CARBOFURAN | 1563-66-2 | 4 | 0.87 | E | 4 | 0.87 | E | 400 | 87 | E | 400 | 87 | E | 4 | 0.87 | E | 4 | 0.87 | E | NA |
| CARBON DISULFIDE | 75-15-0 | 150 | 130 | E | 620 | 530 | E | 10,000 | 10,000 | C | 10,000 | 10,000 | C | 150 | 130 | E | 620 | 530 | E | NA |
| CARBON TETRACHLORIDE | 56-23-5 | 0.5 | 0.26 | E | 0.5 | 0.26 | E | 50 | 26 | E | 50 | 26 | E | 5 | 2.6 | E | 5 | 2.6 | E | NA |
| CARBOXIN | 5234-68-4 | 70 | 53 | E | 70 | 53 | E | 7,000 | 5,300 | E | 7,000 | 5,300 | E | 70 | 53 | E | 70 | 53 | E | NA |
| CHLORAMBEN | 133-90-4 | 10 | 1.6 | E | 10 | 1.6 | E | 1,000 | 160 | E | 1,000 | 160 | E | 10 | 1.6 | E | 10 | 1.6 | E | NA |
| CHLORDANE | 57-74-9 | 0.2 | 49 | E | 0.2 | 49 | E | 5.6 | 1,400 | E | 5.6 | 1,400 | E | 5.6 | 1,400 | E | 5.6 | 1,400 | E | 10 |
| CHLORO-1,1-DIFLUOROETHANE, 1- | 75-68-3 | 10,000 | 1,800 | E | 10,000 | 7,300 | E | 10,000 | 10,000 | C | 10,000 | 10,000 | C | 10,000 | 1,800 | E | 10,000 | 7,300 | E | NA |
| CHLORO-1-PROPENE, 3- (ALLYL CHLORIDE) | 107-05-1 | 0.21 | 0.049 | E | 0.88 | 0.2 | E | 21 | 4.9 | E | 88 | 20 | E | 21 | 4.9 | E | 88 | 20 | E | NA |
| CHLOROACETALDEHYDE | 107-20-0 | 0.24 | 0.029 | E | [1.1] 1 | [0.13] 0.12 | E | 24 | 2.9 | E | [110] 100 | [13] 12 | E | 0.24 | 0.029 | E | [1.1] 1 | [0.1] 0.12 | E | NA |
| [CHLOROACETOPHENONE, 2-] | [532-27-4] | [0.13] | [0.039] | [E] | [0.35] | [0.11] | [E] | [13] | [3.9] | [E] | [35] | [11.0] | [E] | [130] | [39] | [E] | [350] | [110] | [E] | [NA] |

[1] For other options see Section 250.308
All concentrations in mg/kg
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | TDS > 2500 mg/L | | | | Residential | | | Nonresidential | | |
| | | Residential | | Nonresidential | | Residential | | Nonresidential | | | | | | | |
| | | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | |
| CHLOROANILINE, P- | 106-47-8 | [0.37] 0.33 | [0.47] 0.42 E | [1.7] 1.4 | [2.1] 1.8 E | [37] 33 | [47] 42 E | [170] 140 | [210] 180 E | [0.37] 0.33 | [0.47] 0.42 E | | [1.7] 1.4 | [2.1] 1.8 E | | NA |
| CHLOROBENZENE | 108-90-7 | 10 | 6.1 E | 10 | 6.1 E | 1,000 | 610 E | 1,000 | 610 E | 1,000 | 610 E | | 1,000 | 610 E | | NA |
| CHLOROBENZILATE | 510-15-6 | [0.66] 0.59 | [4.4] 3.9 E | [3.1] 2.5 | [20] 17 E | [66] 59 | [440] 390 E | [310] 250 | [2,000] 1,700 E | [660] 590 | [4,400] 3,900 E | | 1,300 | 8,600 E | | 15 |
| CHLOROBUTANE, 1- | 109-69-3 | [170] 140 | [270] 220 E | [470] 390 | [730] 610 E | 10,000 | 10,000 C | 10,000 | 10,000 C | [170] 140 | [270] 220 E | | [470] 390 | [730] 610 E | | 30 |
| CHLORODIBROMO METHANE (THM) | 124-48-1 | 8 | 2.5 E | 8 | 2.5 E | 800 | 250 E | 800 | 250 E | 800 | 250 E | | 800 | 250 E | | NA |
| CHLORODIFLUORO METHANE (THM) | 75-45-6 | 10,000 | 2,800 E | 10,000 | 10,000 C | 10,000 | 10,000 C | 10,000 | 10,000 C | 10,000 | 2,800 E | | 10,000 | 10,000 C | | NA |
| CHLOROETHANE | 75-00-3 | [25] 2,100 | [5.4] 450 E | [120] 8,800 | [26] 1,900 E | [2,500] 10,000 | [540] 10,000 [E] C | 10,000 | [2,600] 10,000 [E] C | [2,500] 10,000 | [540] 10,000 [E] C | | 10,000 | [2,600] 10,000 [E] C | | NA |
| CHLOROFORM (THM) | 67-66-3 | 8 | 2 E | 8 | 2 E | 800 | 200 E | 800 | 200 E | 80 | 20 E | | 80 | 20 E | | NA |
| CHLORONAPHTHALENE, 2- | 91-58-7 | [330] 280 | [7,000] 6,000 E | [930] 780 | [20,000] 17,000 E | 1,200 | 26,000 E | 1,200 | 26,000 E | [330] 280 | [7,000] 6,000 E | | [930] 780 | [20,000] 17,000 E | | 15 |
| CHLORONITROBENZENE, P- | 100-00-5 | [4.2] 0.42 | [5.5] 0.55 E | [12] 1.8 | [16] 2.4 E | [420] 42 | [550] 55 E | [1,200] 180 | [1,600] 240 E | [4.2] 0.42 | [5.5] 0.55 E | | [12] 1.8 | [16] 2.4 E | | NA |
| CHLOROPHENOL, 2- | 95-57-8 | 4 | 4.4 E | 4 | 4.4 E | 400 | 440 E | 400 | 440 E | 4 | 4.4 E | | 4 | 4.4 E | | NA |
| CHLOROPRENE | 126-99-8 | 0.016 | 0.0038 E | 0.083 | 0.02 E | 1.6 | 0.38 E | 8.3 | 2 E | 1.6 | 0.38 E | | 8.3 | 2 E | | NA |
| CHLOROPROPANE, 2- | 75-29-6 | 21 | 16 E | 88 | 67 E | 2,100 | 1,600 E | 8,800 | 6,700 E | 21 | 16 E | | 88 | 67 E | | NA |
| CHLOROTHALONIL | 1897-45-6 | [24] 3.8 | [61] 9.7 E | [60] 16 | [150] 41 E | 60 | 150 E | 60 | 150 E | [24] 3.8 | [61] 9.7 E | | [60] 16 | [150] 41 E | | 30 |
| CHLOROTOLUENE, O- | 95-49-8 | 10 | 20 E | 10 | 20 E | 1,000 | 2,000 E | 1,000 | 2,000 E | 10 | 20 E | | 10 | 20 E | | 30 |
| CHLOROTOLUENE, P- | 106-43-4 | 10 | 10 E | 10 | 10 E | 1,000 | 1,000 E | 1,000 | 1,000 E | 10 | 10 E | | 10 | 10 E | | NA |
| CHLORPYRIFOS | 2921-88-2 | 0.2 | 2.3 E | 0.2 | 2.3 E | 20 | 230 E | 20 | 230 E | 0.2 | 2.3 E | | 0.2 | 2.3 E | | 15 |
| CHLORSULFURON | 64902-72-3 | [210] 69 | [29] 9.6 E | [580] 190 | [80] 26 E | [19,000] 6,900 | [2,600] 960 E | 19,000 | 2,600 E | [210] 69 | [29] 9.6 E | | [580] 190 | [80] 26 E | | NA |
| CHLORTHAL-DIMETHYL (DACTHAL) (DCPA) | 1861-32-1 | 7 | 110 E | 7 | 110 E | 50 | 820 E | 50 | 820 E | 50 | 820 E | | 50 | 820 E | | 15 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | TDS > 2500 mg/L | | | | Residential | | Nonresidential | | | | | | | | |
| | | Residential | | Nonresidential | | Residential | | Nonresidential | | | | | | | | | | | | |
| | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | |
| CHRYSENE | 218-01-9 | [0.19] 0.18 | [230] 220 | E | 0.19 | 230 | E | 0.19 | 230 | E | 0.19 | 230 | E | 0.19 | 230 | E | 0.19 | 230 | E | 5 |
| CRESOL(S) | 1319-77-3 | 130 | 23 | E | 530 | 92 | E | 10,000 | 2,300 | E | 10,000 | 9,200 | E | 10,000 | 2,300 | E | 10,000 | 9,200 | E | NA |
| CRESOL, 4,6-DINITRO-O- | 534-52-1 | [0.33] 0.28 | [0.25] 0.21 | E | [0.93] 0.78 | [0.7] 0.59 | E | [33] 28 | [25] 21 | E | [93] 78 | [70] 59 | E | [330] 28 | [250] 21 | E | [930] 78 | [700] 59 | E | NA |
| CRESOL, O- (2-METHYLPHENOL) | 95-48-7 | [210] 170 | [35] 28 | E | [580] 490 | [96] 81 | E | [21,000] 17,000 | [3,500] 2,800 | E | [58,000]49,000 | [9,600] 8,100 | E | [21,000] 17,000 | [3,500] 2,800 | E | [58,000] 49,000 | [9,600] 8,100 | E | NA |
| CRESOL, M- (3-METHYLPHENOL) | 108-39-4 | [210] 170 | [41] 34 | E | [580] 490 | [110] 97 | E | 10,000 | [4,100] 3,400 | E | 10,000 | [10,000] 9,700 | [C] E | 10,000 | 10,000 | C | 10,000 | 10,000 | C | NA |
| CRESOL, P- (4-METHYLPHENOL) | 106-44-5 | [21] 17 | [4.9] 4 | E | [58] 49 | [14] 11 | E | [2,100] 1,700 | [490] 400 | E | [5,800] 4,900 | [1,400] 1,100 | E | [21,000] 17,000 | [4,900] 4,000 | E | [58,000] 49,000 | [14,000] 11,000 | E | NA |
| CRESOL, P-CHLORO-M- | 59-50-7 | [420] 350 | [870] 720 | E | [1,200] 970 | [2,500] 2,000 | E | [42,000] 35,000 | [87,000] 72,000 | E | [120,000] 97,000 | 190,000 | C | [420] 350 | [870] 720 | E | [1,200] 970 | [2,500] 2,000 | E | 30 |
| CROTONALDEHYDE | 4170-30-3 | [0.038] 0.034 | [0.0048] 0.0043 | E | [0.18] 0.14 | [0.023] 0.018 | E | [3.8] 3.4 | [0.48] 0.43 | E | [18] 14 | [2.3] 1.8 | E | [3.8] 3.4 | [0.48] 0.43 | E | [18] 14 | [2.3] 1.8 | E | NA |
| CROTONALDEHYDE, TRANS- | 123-73-9 | [0.038] 0.034 | [0.0048] 0.0043 | E | [0.18] 0.14 | [0.023] 0.018 | E | [3.8] 3.4 | [0.48] 0.43 | E | [18] 14 | [2.3] 1.8 | E | [3.8] 3.4 | [0.48] 0.43 | E | [18] 14 | [2.3] 1.8 | E | NA |
| CUMENE (ISOPROPYL BENZENE) | 98-82-8 | 84 | 600 | E | 350 | 2,500 | E | 5,000 | 10,000 | C | 5,000 | 10,000 | C | 5,000 | 10,000 | C | 5,000 | 10,000 | C | 15 |
| CYANAZINE | 21725-46-2 | 0.1 | 0.061 | E | 0.1 | 0.061 | E | 10 | 6.1 | E | 10 | 6.1 | E | 0.1 | 0.061 | E | 0.1 | 0.061 | E | NA |
| CYCLOHEXANE | 110-82-7 | 1,300 | 1,700 | E | 5,300 | 6,900 | E | 5,500 | 7,200 | E | 5,500 | 7,200 | E | 1,300 | 1,700 | E | 5,300 | 6,900 | E | NA |
| CYCLOHEXANONE | 108-94-1 | 150 | 41 | E | 620 | 170 | E | 10,000 | 4,100 | E | 10,000 | 10,000 | C | 150 | 41 | E | 620 | 170 | E | NA |
| CYFLUTHRIN | 68359-37-5 | 0.1 | 33 | E | 0.1 | 33 | E | 0.1 | 33 | E | 0.1 | 33 | E | 0.1 | 33 | E | 0.1 | 33 | E | 10 |
| CYROMAZINE | 66215-27-8 | [31] 1,700 | [96] 5,300 | E | [88] 4,900 | [270] 15,000 | E | [3,100] 170,000 | [9,600] 190,000 | [E] C | [8,800] 190,000 | [27,000] 190,000 | [E] C | [31] 1,700 | [96] 5,300 | E | [88] 4,900 | [270] 15,000 | E | 20 |
| DDD, 4,4'- | 72-54-8 | [0.3] 0.27 | [33] 30 | E | [1.4] 1.1 | [150] 120 | E | 16 | 1,800 | E | 16 | 1,800 | E | 16 | 1,800 | E | 16 | 1,800 | E | 10 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | TDS > 2500 mg/L | | | | Residential | | | | Nonresidential | | | | | | |
| | | Residential | | Nonresidential | | Residential | | Nonresidential | | | | | | | | | | | | |
| | | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | | | | | | | |
| DDE, 4,4'- | 72-55-9 | [0.21] **0.19** | [46] **41** E | [1] **0.8** | [220] **170** E | 4 | 870 E | 4 | 870 E | 4 | 870 E | 4 | 870 E | | | | | | | 10 |
| DDT, 4,4'- | 50-29-3 | [0.21] **0.19** | [130] **110** E | 0.55 | 330 E | 0.55 | 330 E | 0.55 | 330 E | 0.55 | 330 E | 0.55 | 330 E | | | | | | | 5 |
| DI(2-ETHYLHEXYL)ADIPATE | 103-23-1 | 40 | 10,000 C | 40 | 10,000 C | 4,000 | 10,000 C | 4,000 | 10,000 C | 10,000 | 10,000 C | 10,000 | 10,000 C | | | | | | | 5 |
| DIALLATE | 2303-16-4 | [1.2] **1.1** | [0.7] **0.64** E | [5.6] **4.5** | [3.3] **2.6** E | [120] **110** | [70] **64** E | [560] **450** | [330] **260** E | [1,200] **1,100** | [700] **640** E | [4,000] **4,000** | [2,300] **2,300** E | | | | | | | NA |
| DIAMINOTOLUENE, 2,4- | 95-80-7 | [0.018] **0.016** | [0.0036] **0.0032** E | [0.085] **0.068** | [0.017] **0.014** E | [1.8] **1.6** | [0.36] **0.32** E | [8.5] **6.8** | [1.7] **1.4** E | [18] **16** | [3.6] **3.2** E | [85] **68** | [17] **14** E | | | | | | | NA |
| DIAZINON | 333-41-5 | 0.1 | 0.14 E | 0.1 | 0.14 E | 10 | 14 E | 10 | 14 E | 0.1 | 0.14 E | 0.1 | 0.14 E | | | | | | | 30 |
| DIBENZO[A,H] ANTHRACENE | 53-70-3 | [0.0055] **0.0052** | [25] **23** E | [0.06] **0.06** | [270] **270** E | 0.06 | 270 E | 0.06 | 270 E | 0.06 | 270 E | 0.06 | 270 E | | | | | | | 5 |
| DIBENZOFURAN | 132-64-9 | [4.2] **3.5** | [110] **90** E | [12] **9.7** | [310] **250** E | [420] **350** | [11,000] **9,000** E | 450 | 12,000 E | [450] **350** | [12,000] **9,000** E | 450 | 12,000 E | | | | | | | 15 |
| DIBROMO-3-CHLOROPROPANE, 1,2- | 96-12-8 | 0.02 | 0.0092 E | 0.02 | 0.0092 E | 2 | 0.92 E | 2 | 0.92 E | 2 | 0.92 E | 2 | 0.92 E | | | | | | | NA |
| DIBROMOBENZENE, 1,4- | 106-37-6 | [42] **35** | [170] **140** E | [120] **97** | [490] **400** E | 2,000 | 8,200 E | 2,000 | 8,200 E | [42] **35** | [170] **140** E | [120] **97** | [490] **400** E | | | | | | | 20 |
| DIBROMOETHANE, 1,2- (ETHYLENE DIBROMIDE) | 106-93-4 | 0.005 | 0.0012 E | 0.005 | 0.0012 E | 0.5 | 0.12 E | 0.5 | 0.12 E | 0.5 | 0.12 E | 0.5 | 0.12 E | | | | | | | NA |
| DIBROMOMETHANE | 74-95-3 | 0.84 | 0.32 E | 3.5 | 1.4 E | 84 | 32 E | 350 | 140 E | 84 | 32 E | 350 | 140 E | | | | | | | NA |
| DIBUTYL PHTHALATE, N- | 84-74-2 | [420] **350** | [1,700] **1,400** E | [1,200] **970** | [4,900] **4,000** E | 10,000 | 10,000 C | 10,000 | 10,000 C | 10,000 | 10,000 C | 10,000 | 10,000 C | | | | | | | 20 |
| DICAMBA | 1918-00-9 | 400 | 45 E | 400 | 45 E | 40,000 | 4,500 E | 40,000 | 4,500 E | 400 | 45 E | 400 | 45 E | | | | | | | NA |
| DICHLOROACETIC ACID (HAA) | 76-43-6 | 6 | 0.79 E | 6 | 0.79 E | 600 | 79 E | 600 | 79 E | 6 | 0.79 E | 6 | 0.79 E | | | | | | | NA |
| DICHLORO-2-BUTENE, 1,4- | 764-41-0 | 0.0012 | 0.00067 E | 0.006 | 0.0034 E | 0.12 | [0.07] **0.067** E | 0.6 | 0.34 E | 0.0012 | [0.0007] **0.00067** E | 0.006 | 0.0034 E | | | | | | | NA |

[1] For other options see Section 250.308
All concentrations in mg/kg
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C – Cap
NA – The soil buffer distance option is not available for this substance
**[THMs – The values listed for trihalomethanes (THMs) are the total for all THMs combined.]**
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| REGULATED SUBSTANCE | CASRN | Used Aquifers | | | | | | | | | | | | Nonuse Aquifers | | | | | | Soil Buffer Distance (feet) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | | | TDS > 2500 mg/L | | | | | | | | | | | | |
| | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | |
| | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | |
| DICHLORO-2-BUTENE, TRANS-1,4- | 110-57-6 | 0.0012 | 0.00078 | E | 0.006 | 0.0039 | E | 0.12 | 0.078 | E | 0.6 | 0.39 | E | 0.0012 | 0.00078 | E | 0.006 | 0.0039 | E | NA |
| DICHLOROBENZENE, 1,2- | 95-50-1 | 60 | 59 | E | 60 | 59 | E | 6,000 | 5,900 | E | 6,000 | 5,900 | E | 6,000 | 5,900 | E | 6,000 | 5,900 | E | NA |
| DICHLOROBENZENE, 1,3- | 541-73-1 | 60 | 61 | E | 60 | 61 | E | 6,000 | 6,100 | E | 6,000 | 6,100 | E | 6,000 | 6,100 | E | 6,000 | 6,100 | E | NA |
| DICHLOROBENZENE, P- | 106-46-7 | 7.5 | 10 | E | 7.5 | 10 | E | 750 | 1,000 | E | 750 | 1,000 | E | 750 | 1,000 | E | 750 | 1,000 | E | 30 |
| DICHLOROBENZIDINE, 3,3'- | 91-94-1 | [0.16] 0.14 | [8.8] 7.7 | E | [0.76] 0.6 | [42] 33 | E | [16] 14 | [880] 770 | E | [76] 60 | [4,200] 3,300 | E | [160] 140 | [8,800] 7,700 | E | 310 | 17,000 | E | 10 |
| DICHLORODIFLUORO-METHANE (FREON 12) | 75-71-8 | 100 | 100 | E | 100 | 100 | E | 10,000 | 10,000 | C | 10,000 | 10,000 | C | 10,000 | 10,000 | C | 10,000 | 10,000 | C | NA |
| DICHLOROETHANE, 1,1- | 75-34-3 | 3.1 | 0.75 | E | 16 | 3.9 | E | 310 | 75 | E | 1,600 | 390 | E | 31 | 7.5 | E | 160 | 39 | E | NA |
| DICHLOROETHANE, 1,2- | 107-06-2 | 0.5 | 0.1 | E | 0.5 | 0.1 | E | 50 | 10 | E | 50 | 10 | E | 5 | 1 | E | 5 | 1 | E | NA |
| DICHLOROETHYLENE, 1,1- | 75-35-4 | 0.7 | 0.19 | E | 0.7 | 0.19 | E | 70 | 19 | E | 70 | 19 | E | 7 | 1.9 | E | 7 | 1.9 | E | NA |
| DICHLOROETHYLENE, CIS-1,2- | 156-59-2 | 7 | 1.6 | E | 7 | 1.6 | E | 700 | 160 | E | 700 | 160 | E | 70 | 16 | E | 70 | 16 | E | NA |
| DICHLOROETHYLENE, TRANS-1,2- | 156-60-5 | 10 | 2.3 | E | 10 | 2.3 | E | 1,000 | 230 | E | 1,000 | 230 | E | 100 | 23 | E | 100 | 23 | E | NA |
| DICHLOROMETHANE (METHYLENE CHLORIDE) | 75-09-2 | 0.5 | 0.076 | E | 0.5 | 0.076 | E | 50 | 7.6 | E | 50 | 7.6 | E | 50 | 7.6 | E | 50 | 7.6 | E | NA |
| DICHLOROPHENOL, 2,4- | 120-83-2 | 2 | 1 | E | 2 | 1 | E | 200 | 100 | E | 200 | 100 | E | 2,000 | 1,000 | E | 2,000 | 1,000 | E | NA |
| DICHLOROPHENOXY ACETIC ACID, 2,4- (2,4-D) | 94-75-7 | 7 | 1.8 | E | 7 | 1.8 | E | 700 | 180 | E | 700 | 180 | E | 7,000 | 1,800 | E | 7,000 | 1,800 | E | NA |
| DICHLOROPROPANE, 1,2- | 78-87-5 | 0.5 | 0.11 | E | 0.5 | 0.11 | E | 50 | 11 | E | 50 | 11 | E | 5 | 1.1 | E | 5 | 1.1 | E | NA |
| DICHLOROPROPENE, 1,3- | 542-75-6 | [0.73] 0.65 | [0.13] 0.12 | E | [3.4] 2.7 | [0.61] 0.48 | E | [73] 65 | [13] 12 | E | [340] 270 | [61] 48 | E | [73] 65 | [13] 12 | E | [340] 270 | [61] 48 | E | NA |
| DICHLOROPROPIONIC ACID, 2,2- (DALAPON) | 75-99-0 | 20 | 5.3 | E | 20 | 5.3 | E | 2,000 | 530 | E | 2,000 | 530 | E | 2,000 | 530 | E | 2,000 | 530 | E | NA |
| DICHLORVOS | 62-73-7 | [0.25] 0.22 | [0.059] 0.052 | E | [1.2] 0.94 | [0.28] 0.22 | E | [25] 22 | [5.9] 5.2 | E | [120] 94 | [28] 22 | E | [0.25] 0.22 | [0.059] 0.052 | E | [1.2] 0.94 | [0.28] 0.22 | E | NA |
| DICYCLOPENTADIENE | 77-73-6 | 0.063 | 0.13 | E | 0.26 | 0.56 | E | [6] 6.3 | 13 | E | 26 | 56 | E | [0.1] 0.063 | [0.1] 0.13 | E | [0.3] 0.26 | [1] 0.56 | E | 30 |
| DIELDRIN | 60-57-1 | [0.0046] 0.0041 | [0.13] 0.11 | E | [0.021] 0.017 | [0.58] 0.47 | E | [0.46] 0.41 | [13] 11 | E | [2.1] 1.7 | [58] 47 | E | [4.6] 4.1 | [130] 110 | E | [17] 17 | [470] 470 | E | 15 |
| [DIETHANOLAMINE] | [111-42-2] | [NA] | [NA] | | [NA] | [NA] | | [NA] | [NA] | | [NA] | [NA] | | [NA] | [NA] | | [NA] | [NA] | | [NA] |

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All concentrations in mg/kg
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | | | TDS > 2500 mg/L | | | | | | | | | | | | |
| | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | |
| | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | |
| DIETHYL PHTHALATE | 84-66-2 | [3,300] 2,800 | [1,000] 880 | E | [9,300] 7,800 | [2,900] 2,400 | E | 10,000 | 10,000 | C | 10,000 | 10,000 | C | 10,000 | 10,000 | C | 10,000 | 10,000 | C | NA |
| DIFLUBENZURON | 35367-38-5 | 20 | 52 | E | 20 | 52 | E | 20 | 52 | E | 20 | 52 | E | 20 | 52 | E | 20 | 52 | E | 20 |
| DIISOPROPYL METHYLPHOSPHONATE | 1445-75-6 | 60 | 8.2 | E | 60 | 8.2 | E | 6,000 | 820 | E | 6,000 | 820 | E | 60 | 8.2 | E | 60 | 8.2 | E | NA |
| DIMETHOATE | 60-51-5 | [0.83] 7.6 | [0.32] 2.9 | E | [2.3] 21 | [0.89] 8.1 | E | [83] 760 | [32] 290 | E | [230] 2,100 | [89] 810 | E | [830] 7,600 | [320] 2,900 | E | [2,300] 21,000 | [890] 8,100 | E | NA |
| DIMETHOXYBENZIDINE, 3,3- | 119-90-4 | [0.046] 0.041 | [0.15] 0.14 | E | [0.21] 0.17 | [0.71] 0.57 | E | [5] 4.1 | [15] 14 | E | [21] 17 | [71] 57 | E | [46] 41 | [150] 140 | E | [210] 170 | [710] 570 | E | 20 |
| DIMETHRIN | 70-38-2 | 3.6 | 240 | E | 3.6 | 240 | E | 3.6 | 240 | E | 3.6 | 240 | E | 3.6 | 240 | E | 3.6 | 240 | E | 10 |
| DIMETHYLAMINOAZO BENZENE, P- | 60-11-7 | [0.016] 0.014 | [0.042] 0.037 | E | [0.074] 0.059 | [0.19] 0.15 | E | [1.6] 1.4 | [4.2] 3.7 | E | [7.4] 5.9 | [19] 15 | E | [16] 14 | [42] 37 | E | [74] 59 | [190] 150 | E | 20 |
| DIMETHYLANILINE, N,N- | 121-69-7 | [8.3] 2.4 | [4.7] 1.3 | E | [23] 10 | [13] 5.6 | E | [830] 240 | [470] 130 | E | [2,300] 1,000 | [1,300] 560 | E | [830] 240 | [470] 130 | E | [2,300] 1,000 | [1,300] 560 | E | NA |
| DIMETHYLBENZIDINE, 3,3- | 119-93-7 | [0.0066] 0.0059 | [0.36] 0.33 | E | [0.031] 0.025 | [1.7] 1.4 | E | [0.7] 0.59 | [36] 33 | E | [3.1] 2.5 | [170] 140 | E | [7] 5.9 | [360] 330 | E | [31] 25 | [1,700] 1,400 | E | 10 |
| DIMETHYL METHYLPHOSPHONATE | 756-79-6 | 10 | 1.2 | E | 10 | 1.2 | E | 1,000 | 120 | E | 1,000 | 120 | E | 10 | 1.2 | E | 10 | 1.2 | E | NA |
| DIMETHYLPHENOL, 2,4- | 105-67-9 | [83] 69 | [36] 30 | E | [230] 190 | [100] 83 | E | [8,300] 6,900 | [3,600] 3,000 | E | 10,000 | [10,000] 8,300 | [C] E | 10,000 | 10,000 | C | 10,000 | 10,000 | C | NA |
| DINITROBENZENE, 1,3- | 99-65-0 | 0.1 | 0.049 | E | 0.1 | 0.049 | E | 10 | 4.9 | E | 10 | 4.9 | E | 100 | 49 | E | 100 | 49 | E | NA |
| DINITROPHENOL, 2,4- | 51-28-5 | [8.3] 6.9 | [0.94] 0.78 | E | [23] 19 | [2.6] 2.1 | E | [830] 690 | [94] 78 | E | [2,300] 1,900 | [260] 210 | E | [8,300] 6,900 | [940] 780 | E | [23,000] 19,000 | [2,600] 2,100 | E | NA |
| DINITROTOLUENE, 2,4- | 121-14-2 | [0.24] 0.21 | [0.057] 0.05 | E | [1.1] 0.88 | [0.26] 0.21 | E | [24] 21 | [6] 5 | E | [110] 88 | [26] 21 | E | [240] 210 | [57] 50 | E | [1,100] 880 | [260] 210 | E | NA |
| DINITROTOLUENE, 2,6- (2,6-DNT) | 606-20-2 | [0.049] 0.043 | [0.015] 0.013 | E | [0.23] 0.18 | [0.068] 0.053 | E | [5] 4.3 | [2] 1.3 | E | [23] 18 | [7] 5.3 | E | [49] 43 | [15] 13 | E | [230] 180 | [68] 53 | E | NA |
| DINOSEB | 88-85-7 | 0.7 | 0.29 | E | 0.7 | 0.29 | E | 70 | 29 | E | 70 | 29 | E | 700 | 290 | E | 700 | 290 | E | NA |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | TDS > 2500 mg/L | | | | | | | | |
| | | Residential | | Nonresidential | | Residential | | Nonresidential | | Residential | | Nonresidential | | |
| | | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | |
| DIOXANE, 1,4- | 123-91-1 | [0.64] 0.65 | [0.084] 0.085 E | [3.2] 2.7 | [0.42] 0.35 E | [64] 65 | [8.4] 8.5 E | [320] 270 | [42] 35 E | [6.4] 6.5 | [0.84] 0.85 E | [32] 27 | [4.2] 3.5 E | NA |
| DIPHENAMID | 957-51-7 | 20 | 12 E | 20 | 12 E | 2,000 | 1,200 E | 2,000 | 1,200 E | 20 | 12 E | 20 | 12 E | NA |
| DIPHENYLAMINE | 122-39-4 | [100] 350 | [59] 210 E | [290] 970 | [170] 570 E | [10,000] 30,000 | [5,900] 18,000 E | [29,000] 30,000 | [17,000] 18,000 E | 30,000 | 18,000 E | 30,000 | 18,000 E | NA |
| DIPHENYLHYDRAZINE, 1,2- | 122-66-7 | [0.091] 0.022 | [0.16] 0.039 E | [0.43] 0.11 | [0.76] 0.19 E | [9.1] 2.2 | [16] 3.9 E | [25] 11 | [44] 19 E | [25] 2.2 | [44] 3.9 E | [25] 11 | [44] 19 E | 30 |
| DIQUAT | 85-00-7 | 2 | 0.24 E | 2 | 0.24 E | 200 | 24 E | 200 | 24 E | 2 | 0.24 E | 2 | 0.24 E | NA |
| DISULFOTON | 298-04-4 | 0.07 | 0.18 E | 0.07 | 0.18 E | 7 | 18 E | 7 | 18 E | 70 | 180 E | 70 | 180 E | 20 |
| DITHIANE, 1,4- | 505-29-3 | 8 | 1.3 E | 8 | 1.3 E | 800 | 130 E | 800 | 130 E | 8 | 1.3 E | 8 | 1.3 E | NA |
| DIURON | 330-54-1 | [8.3] 6.9 | [7.1] 5.9 E | [23] 19 | [20] 16 E | [830] 690 | [710] 590 E | [2,300] 1,900 | [2,000] 1,600 E | [8.3] 6.9 | [7.1] 5.9 E | [23] 19 | [20] 16 E | NA |
| ENDOSULFAN | 115-29-7 | [25] 21 | [130] 110 E | 48 | 250 E | 48 | 250 E | 48 | 250 E | 48 | 250 E | 48 | 250 E | 15 |
| ENDOSULFAN I (ALPHA) | 959-98-8 | [25] 21 | [130] 110 E | 50 | 260 E | 50 | 260 E | 50 | 260 E | [25] 21 | [130] 110 E | 50 | 260 E | 15 |
| ENDOSULFAN II (BETA) | 33213-65-9 | [25] 21 | [150] 120 E | 45 | 260 E | 45 | 260 E | 45 | 260 E | [25] 21 | [150] 120 E | 45 | 260 E | 15 |
| ENDOSULFAN SULFATE | 1031-07-8 | 12 | 70 E | 12 | 70 E | 12 | 70 E | 12 | 70 E | 12 | 70 E | 12 | 70 E | 15 |
| ENDOTHALL | 145-73-3 | 10 | 4.1 E | 10 | 4.1 E | 1,000 | 410 E | 1,000 | 410 E | 10 | 4.1 E | 10 | 4.1 E | NA |
| ENDRIN | 72-20-8 | 0.2 | 5.5 E | 0.2 | 5.5 E | 20 | 550 E | 20 | 550 E | 0.2 | 5.5 E | 0.2 | 5.5 E | 15 |
| EPICHLOROHYDRIN | 106-89-8 | 0.21 | 0.042 E | 0.88 | 0.17 E | 21 | 4.2 E | 88 | 17 E | 21 | 4.2 E | 88 | 17 E | NA |
| ETHEPHON | 16672-87-0 | [21] 17 | [2.4] 2 E | [58] 49 | [6.7] 5.7 E | [2,100] 1,700 | [240] 200 E | [5,800] 4,900 | [670] 570 E | [21] 17 | [2.4] 2 E | [58] 49 | [6.7] 5.7 E | NA |
| ETHION | 563-12-2 | [2.1] 1.7 | [46] 37 E | [5.8] 4.9 | [130] 110 E | 85 | 1,900 E | 85 | 1,900 E | [2.1] 1.7 | [46] 37 E | [5.8] 4.9 | [130] 110 E | 15 |
| ETHOXYETHANOL, 2- (EGEE) | 110-80-5 | 42 | 5.9 E | 180 | 25 E | 4,200 | 590 E | 10,000 | 2,500 E | 4,200 | 590 E | 10,000 | 2,500 E | NA |
| ETHYL ACETATE | 141-78-6 | 15 | 3.9 E | 62 | 16 E | 1,500 | 390 E | 6,200 | 1,600 E | 1,500 | 390 E | 6,200 | 1,600 E | NA |
| ETHYL ACRYLATE | 140-88-5 | [1.5] 1.4 | [0.58] 0.54 E | [7.0] 5.7 | [2.7] 2.2 E | [150] 140 | [58] 54 E | [700] 570 | [270] 220 E | [150] 140 | [58] 54 E | [700] 570 | [270] 220 E | NA |
| ETHYL BENZENE | 100-41-4 | 70 | 46 E | 70 | 46 E | 7,000 | 4,600 E | 7,000 | 4,600 E | 7,000 | 4,600 E | 7,000 | 4,600 E | NA |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | | | TDS > 2500 mg/L | | | | | | | | | | | | |
| | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | |
| | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | |
| ETHYL DIPROPYL THIOCARBAMATE, S-(EPTC) | 759-94-4 | [100] 170 | [71] 120 | E | [290] 490 | [210] 350 | E | 10,000 | [7,100] 10,000 | [E] C | 10,000 | 10,000 | C | [100] 170 | [71] 120 | E | [290] 490 | [210] 350 | E | NA |
| ETHYL ETHER | 60-29-7 | [830] 690 | [230] 190 | E | [2,300] 1,900 | [650] 530 | E | 10,000 | 10,000 | C | 10,000 | 10,000 | C | [830] 690 | [230] 190 | E | [2,300] 1,900 | [650] 530 | E | NA |
| ETHYL METHACRYLATE | 97-63-2 | 63 | 10 | E | 260 | 43 | E | 6,300 | 1,000 | E | 10,000 | 4,300 | E | 63 | 10 | E | 260 | 43 | E | NA |
| ETHYLENE CHLORHYDRIN | 107-07-3 | [83] 69 | [10] 7.9 | E | [230] 190 | [26] 22 | E | [8,300] 6,900 | [950] 790 | E | 10,000 | [2,600] 2,200 | E | [83] 69 | [10] 7.9 | E | [230] 190 | [26] 22 | E | NA |
| ETHYLENE GLYCOL | 107-21-1 | 1,400 | 170 | E | 1,400 | 170 | E | 10,000 | 10,000 | C | 10,000 | 10,000 | C | 10,000 | 10,000 | C | 10,000 | 10,000 | C | NA |
| ETHYLENE THIOUREA (ETU) | 96-45-7 | [0.33] 0.28 | [0.037] 0.031 | E | [0.93] 0.78 | [0.1] 0.087 | E | [33] 28 | [3.7] 3.1 | E | [93] 78 | [10] 8.7 | E | [330] 280 | [37] 31 | E | [930] 780 | [100] 87 | E | NA |
| ETHYLP-NITROPHENYL PHENYLPHOSPHORO THIOATE | 2104-64-5 | [0.042] 0.035 | [0.13] 0.11 | E | [0.12] 0.097 | [0.37] 0.3 | E | [4.2] 3.5 | [13] 11 | E | [12] 9.7 | [37] 30 | E | [0.042] 0.035 | [0.13] 0.11 | E | [0.12] 0.097 | [0.37] 0.3 | E | 20 |
| FENAMIPHOS | 22224-92-6 | 0.07 | 0.06 | E | 0.07 | 0.06 | E | 7 | 6 | E | 7 | 6 | E | 0.07 | 0.06 | E | 0.07 | 0.06 | E | NA |
| FENVALERATE (PYDRIN) | 51630-58-1 | 8.5 | 94 | E | 8.5 | 94 | E | 8.5 | 94 | E | 8.5 | 94 | E | 8.5 | 94 | E | 8.5 | 94 | E | 15 |
| FLUOMETURON | 2164-17-2 | 9 | 2.5 | E | 9 | 2.5 | E | 900 | 250 | E | 900 | 250 | E | 9 | 2.5 | E | 9 | 2.5 | E | NA |
| FLUORANTHENE | 206-44-0 | 26 | 3,200 | E | 26 | 3,200 | E | 26 | 3,200 | E | 26 | 3,200 | E | 26 | 3,200 | E | 26 | 3,200 | E | 10 |
| FLUORENE | 86-73-7 | [170] 140 | [3,400] 2,800 | E | 190 | 3,800 | E | 190 | 3,800 | E | 190 | 3,800 | E | 190 | 3,800 | E | 190 | 3,800 | E | 15 |
| FLUOROTRICHLORO METHANE (FREON 11) | 75-69-4 | 200 | 87 | E | 200 | 87 | E | 10,000 | 8,700 | E | 10,000 | 8,700 | E | 10,000 | 8,700 | E | 10,000 | 8,700 | E | NA |
| FONOFOS | 944-22-9 | 1 | 2.9 | E | 1 | 2.9 | E | 100 | 290 | E | 100 | 290 | E | 1 | 2.9 | E | 1 | 2.9 | E | 20 |
| FORMALDEHYDE | 50-00-0 | 100 | 12 | E | 100 | 12 | E | 10,000 | 1,200 | E | 10,000 | 1,200 | E | 10,000 | 1,200 | E | 10,000 | 1,200 | E | NA |
| FORMIC ACID | 64-18-6 | 0.063 | 0.0071 | E | 0.26 | 0.029 | E | 6.3 | 0.71 | E | 26 | 2.9 | E | 0.63 | 0.071 | E | 2.6 | 0.29 | E | NA |
| FOSETYL-AL | 39148-24-8 | [13,000] 8,700 | [12,000] 7,700 | E | [35,000] 24,000 | [31,000] 21,000 | E | 190,000 | 190,000 | C | 190,000 | 190,000 | C | [13,000] 8,700 | [12,000] 7,700 | E | [35,000] 24,000 | [31,000] 21,000 | E | NA |
| FURAN | 110-00-9 | [4.2] 3.5 | [1.8] 1.5 | E | [12] 9.7 | [5.2] 4.2 | E | [420] 350 | [180] 150 | E | [1,200] 970 | [520] 420 | E | [420] 350 | [180] 150 | E | [1,200] 970 | [520] 420 | E | NA |

[1] For other options see Section 250.308
All concentrations in mg/kg
E – Number calculated by the soil to groundwater equation is section 250.308
C – Cap
NA – The soil buffer distance option is not available for this substance
**[THMs – The values listed for trihalomethanes (THMs) are the total for all THMs combined.]**
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**B. Soil to Groundwater Numeric Values[1]**

| REGULATED SUBSTANCE | CASRN | Used Aquifers | | | | | | | | | | | | Nonuse Aquifers | | | | | | Soil Buffer Distance (feet) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | | | TDS > 2500 mg/L | | | | | | | | | | | | |
| | | Residential | | | | Nonresidential | | | | Residential | | | | Nonresidential | | | | Residential | | | | Nonresidential | | | | |
| | | 100 X GW MSC | | Generic Value | | 100 X GW MSC | | Generic Value | | 100 X GW MSC | | Generic Value | | 100 X GW MSC | | Generic Value | | 100 X GW MSC | | Generic Value | | 100 X GW MSC | | Generic Value | | |
| FURFURAL | 98-01-1 | [11] 1.9 | | [1.4] 0.24 | E | [35] 7.8 | | [4.4] 0.99 | E | [1,100] 190 | | [140] 24 | E | [3,500] 780 | | [440] 99 | E | [11] 1.9 | | [1.4] 0.24 | E | [35] 7.8 | | [4.4] 0.99 | E | NA |
| GLYPHOSATE | 1071-83-6 | 70 | | 620 | E | 70 | | 620 | E | 7,000 | | 62,000 | E | 7,000 | | 62,000 | E | 70 | | 620 | E | 70 | | 620 | E | 15 |
| HEPTACHLOR | 76-44-8 | 0.04 | | 0.68 | E | 0.04 | | 0.68 | E | 4 | | 68 | E | 4 | | 68 | E | 18 | | 310 | E | 18 | | 310 | E | 15 |
| HEPTACHLOR EPOXIDE | 1024-57-3 | 0.02 | | 1.1 | E | 0.02 | | 1.1 | E | 2 | | 110 | E | 2 | | 110 | E | 20 | | 1,100 | E | 20 | | 1,100 | E | 10 |
| HEXACHLOROBENZENE | 118-74-1 | 0.1 | | 0.96 | E | 0.1 | | 0.96 | E | 0.6 | | 5.8 | E | 0.6 | | 5.8 | E | 0.6 | | 5.8 | E | 0.6 | | 5.8 | E | 15 |
| HEXACHLOROBUTADIENE | 87-68-3 | [0.94] 0.84 | | [11] 10 | E | [4.4] 3.5 | | [52] 42 | E | [94] 84 | | [1,100] 1,000 | E | [290] 290 | | [3,400] 3,400 | E | 290 | | 3,400 | E | 290 | | 3,400 | E | 15 |
| HEXACHLOROCYCLO PENTADIENE | 77-47-4 | 5 | | 91 | E | 5 | | 91 | E | 180 | | 3,300 | E | 180 | | 3,300 | E | 180 | | 3,300 | E | 180 | | 3,300 | E | 15 |
| HEXACHLOROETHANE | 67-72-1 | 0.1 | | 0.56 | E | 0.1 | | 0.56 | E | 10 | | 56 | E | 10 | | 56 | E | 10 | | 56 | E | 10 | | 56 | E | 15 |
| HEXANE | 110-54-3 | 150 | | 1,400 | E | [620] 580 | | [5,600] 5,300 | E | 950 | | 8,700 | E | 950 | | 8,700 | E | 150 | | 1,400 | E | [620] 580 | | [5,600] 5,300 | E | 15 |
| HEXAZINONE | 51235-04-2 | 40 | | 8.5 | E | 40 | | 8.5 | E | 4,000 | | 850 | E | 4,000 | | 850 | E | 40 | | 8.5 | E | 40 | | 8.5 | E | NA |
| HEXYTHIAZOX (SAVEY) | 78587-05-0 | 50 | | 820 | E | 50 | | 820 | E | 50 | | 820 | E | 50 | | 820 | E | 50 | | 820 | E | 50 | | 820 | E | 15 |
| HMX | 2691-41-0 | 40 | | 4.8 | E | 40 | | 4.8 | E | 500 | | 60 | E | 500 | | 60 | E | 40 | | 4.8 | E | 40 | | 4.8 | E | NA |
| HYDRAZINE/HYDRAZINE SULFATE | 302-01-2 | 0.001 | | 0.00011 | E | 0.0051 | | 0.00057 | E | 0.1 | | 0.011 | E | 0.51 | | 0.057 | E | 0.01 | | 0.0011 | E | 0.051 | | 0.0057 | E | NA |
| HYDROQUINONE | 123-31-9 | [1.2] 1.1 | | [0.16] 0.15 | E | [5.7] 4.5 | | [0.77] 0.61 | E | [120] 110 | | [16] 15 | E | [570] 450 | | [77] 61 | E | [1,200] 1,100 | | [160] 150 | E | [5,700] 4,500 | | [770] 610 | E | NA |
| INDENO[1,2,3-CD]PYRENE | 193-39-5 | [0.019] 0.018 | | [1,500] 1,400 | E | [0.28] 0.23 | | [22,000] 18,000 | E | [1.9] 1.8 | | [150,000] 140,000 | E | 6.2 | | 190,000 | C | 6.2 | | 190,000 | C | 6.2 | | 190,000 | C | 5 |
| IPRODIONE | 36734-19-7 | [170] 1.5 | | [490] 4.3 | E | [470] 6.2 | | [1,300] 18 | E | [1,300] 150 | | [3,700] 430 | E | [1,300] 620 | | [3,700] 1,800 | E | [170] 1.5 | | [490] 4.3 | E | [470] 6.2 | | [1,300] 18 | E | 20 |
| ISOBUTYL ALCOHOL | 78-83-1 | [1,300] 1,000 | | [340] 260 | E | [3,500] 2,900 | | [910] 760 | E | 10,000 | | 10,000 | C | 10,000 | | 10,000 | C | 10,000 | | 10,000 | C | 10,000 | | 10,000 | C | NA |
| ISOPHORONE | 78-59-1 | 10 | | 1.9 | E | 10 | | 1.9 | E | 1,000 | | 190 | E | 1,000 | | 190 | E | 10,000 | | 1,900 | E | 10,000 | | 1,900 | E | NA |
| ISOPROPYL METHYLPHOSPHONATE | 1832-54-8 | 70 | | 8.1 | E | 70 | | 8.1 | E | 7,000 | | 810 | E | 7,000 | | 810 | E | 70 | | 8.1 | E | 70 | | 8.1 | E | NA |

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All concentrations in mg/kg
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | | | TDS > 2500 mg/L | | | | | | | | | | | | |
| | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | |
| | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | |
| KEPONE | 143-50-0 | [0.0073] 0.0065 | [1] 0.89 | E | [0.034] 0.027 | [4.7] 3.7 | E | [0.73] 0.65 | [100] 89 | E | [3.4] 2.7 | [470] 370 | E | [7.3] 6.5 | [1,000] 890 | E | [34] 27 | [4,700] 3,700 | E | 10 |
| MALATHION | 121-75-5 | 50 | 170 | E | 50 | 170 | E | 5,000 | 10,000 | C | 5,000 | 10,000 | C | 10,000 | 10,000 | C | 10,000 | 10,000 | C | 20 |
| MALEIC HYDRAZIDE | 123-33-1 | 400 | 47 | E | 400 | 47 | E | 40,000 | 4,700 | E | 40,000 | 4,700 | E | 400 | 47 | E | 400 | 47 | E | NA |
| MANEB | 12427-38-2 | [21] 1.1 | [2] 0.12 | E | [58] 4.5 | [6.6] 0.51 | E | [2,100] 110 | [240] 12 | E | [2,300] 450 | [260] 51 | E | [21] 1.1 | [2] 0.12 | E | [58] 4.5 | [6.6] 0.51 | E | N/ |
| MERPHOS OXIDE | 78-48-8 | [0.13] 3.5 | [17] 460 | E | [0.35] 9.7 | [46] 1,300 | E | [13] 230 | [1,700] 10,000 | [E] C | [35] 230 | [4,600] 10,000 | [E] C | [0.13] 3.5 | [17] 460 | E | [0.35] 9.7 | [46] 1,300 | E | 10 |
| METHACRYLONITRILE | 126-98-7 | [0.42] 0.35 | [0.069] 0.057 | E | [1.2] 0.97 | [0.2] 0.16 | E | [42] 35 | [6.9] 5.7 | E | [120] 97 | [20] 16 | E | [0.42] 0.35 | [0.069] 0.057 | E | [1.2] 0.97 | [0.2] 0.16 | E | NA |
| METHAMIDOPHOS | 10265-92-6 | [0.21] 0.17 | [0.026] 0.021 | E | [0.58] 0.49 | [0.072] 0.061 | E | [21] 17 | [2.6] 2.1 | E | [58] 49 | [7.2] 6.1 | E | [0.21] 0.17 | [0.026] 0.021 | E | [0.58] 0.49 | [0.072] 0.061 | E | NA |
| METHANOL | 67-56-1 | [840] 4,200 | [99] 500 | E | [3,500] 10,000 | [410] 2,100 | E | 10,000 | [9,900] 10,000 | [E] C | 10,000 | 10,000 | C | 10,000 | [9,900] 10,000 | [E] C | 10,000 | 10,000 | C | NA |
| METHOMYL | 16752-77-5 | 20 | 3.2 | E | 20 | 3.2 | E | 2,000 | 320 | E | 2,000 | 320 | E | 20 | 3.2 | E | 20 | 3.2 | E | NA |
| METHOXYCHLOR | 72-43-5 | 4 | 630 | E | 4 | 630 | E | 4.5 | 710 | E | 4.5 | 710 | E | 4.5 | 710 | E | 4.5 | 710 | E | 10 |
| METHOXYETHANOL, 2- | 109-86-4 | 4.2 | 0.48 | E | 18 | 2 | E | 420 | 48 | E | 1,800 | 200 | E | 42 | 4.8 | E | 180 | 20 | E | NA |
| METHYL ACETATE | 79-20-9 | [4,200] 3,500 | [780] 650 | E | [10,000] 9,700 | [2,200] 1,800 | E | 10,000 | 10,000 | C | 10,000 | 10,000 | C | [4,200] 3,500 | [780] 650 | E | [10,000] 9,700 | [2,200] 1,800 | E | NA |
| METHYL ACRYLATE | 96-33-3 | [4] 4.2 | 1 | E | 18 | [5] 4.5 | E | 420 | 100 | E | 1,800 | 450 | E | 420 | 100 | E | 1,800 | 450 | E | NA |
| METHYL CHLORIDE | 74-87-3 | 3 | 0.38 | E | 3 | 0.38 | E | 300 | 38 | E | 300 | 38 | E | 300 | 38 | E | 300 | 38 | E | NA |
| METHYL ETHYL KETONE | 78-93-3 | 400 | 76 | E | 400 | 76 | E | 10,000 | 7,600 | E | 10,000 | 7,600 | E | 10,000 | 7,600 | E | 10,000 | 7,600 | E | NA |
| METHYL HYDRAZINE | 60-34-4 | 0.0042 | 0.00048 | E | 0.018 | 0.002 | E | 0.42 | 0.048 | E | 1.8 | 0.2 | E | 0.042 | 0.0048 | E | 0.18 | 0.02 | E | NA |
| METHYL ISOBUTYL KETONE | 108-10-1 | [330] 280 | [51] 43 | E | [930] 780 | [140] 120 | E | 10,000 | [5,100] 4,300 | E | 10,000 | 10,000 | C | 10,000 | [5,100] 4,300 | E | 10,000 | 10,000 | C | NA |
| METHYL ISOCYANATE | 624-83-9 | 0.21 | 0.029 | E | 0.88 | 0.12 | E | 21 | 2.9 | E | 88 | 12 | E | 0.21 | 0.029 | E | 0.88 | 0.12 | E | NA |
| METHYL N-BUTYL KETONE (2-HEXANONE) | 591-78-6 | 6.3 | 1.6 | E | 26 | 6.4 | E | 630 | 160 | E | 2,600 | 640 | E | 6.3 | 1.6 | E | 26 | 6.4 | E | NA |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | | | TDS > 2500 mg/L | | | | | | | | | | |
| | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | | | | | |
| | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | |
| METHYL METHACRYLATE | 80-62-6 | 150 | 20 | E | 620 | 84 | E | 10,000 | 2,000 | E | 10,000 | 8,400 | E | 10,000 | 2,000 | E | 10,000 | 8,400 | E | NA |
| METHYL METHANESULFONATE | 66-27-3 | [0.74] 0.66 | [0.092] 0.082 | E | [3.4] 2.7 | [0.42] 0.34 | E | [74] 66 | [9.2] 8.2 | E | [340] 270 | [42] 34 | E | [0.74] 0.66 | [0.092] 0.082 | E | [3.4] 2.7 | [0.42] 0.34 | E | NA |
| METHYL PARATHION | 298-00-0 | 0.1 | 0.21 | E | 0.1 | 0.21 | E | 10 | 21 | E | 10 | 21 | E | 100 | 210 | E | 100 | 210 | E | 30 |
| METHYL STYRENE (MIXED ISOMERS) | 25013-15-4 | 8.4 | 47 | E | 35 | 200 | E | 840 | 4,700 | E | 3,500 | 10,000 | C | 8.4 | 47 | E | 35 | 200 | E | 15 |
| METHYL TERT-BUTYL ETHER (MTBE) | 1634-04-4 | 2 | 0.28 | E | 2 | 0.28 | E | 200 | 28 | E | 200 | 28 | E | 20 | 2.8 | E | 20 | 2.8 | E | NA |
| METHYLCHLOROPHENOXYACETIC ACID (MCPA) | 94-74-6 | 3 | 1.2 | E | 3 | 1.2 | E | 300 | 120 | E | 300 | 120 | E | 3,000 | 1,200 | E | 3,000 | 1,200 | E | NA |
| METHYLENE BIS(2-CHLOROANILINE), 4,4'- | 101-14-4 | [0.23] 0.21 | [1.8] 1.6 | E | [3.4] 2.7 | [26] 21 | E | [23] 21 | [180] 160 | E | [340] 270 | [2,600] 2,100 | E | [0.23] 0.21 | [1.8] 1.6 | E | [3.4] 2.7 | [26] 21 | E | 15 |
| METHYLNAPHTHALENE, 2- | 91-57-6 | [17] 0.63 | [680] 25 | E | [47] 2.6 | [1,900] 100 | E | [1,700] 63 | [68,000] 2,500 | E | [2,500] 260 | [100,000] 10,000 | E | [17] 0.63 | [680] 25 | E | [47] 2.6 | [1,900] 100 | E | 15 |
| METHYLSTYRENE, ALPHA | 98-83-9 | [290] 240 | [510] 420 | E | [820] 680 | [1,400] 1,200 | E | 10,000 | 10,000 | C | 10,000 | 10,000 | C | [290] 240 | [510] 420 | E | [820] 680 | [1,400] 1,200 | E | 30 |
| METOLACHLOR | 51218-45-2 | 70 | 40 | E | 70 | 40 | E | 7,000 | 4,000 | E | 7,000 | 4,000 | E | 70 | 40 | E | 70 | 40 | E | NA |
| METRIBUZIN | 21087-64-9 | 7 | 2.4 | E | 7 | 2.4 | E | 700 | 240 | E | 700 | 240 | E | 7 | 2.4 | E | 7 | 2.4 | E | NA |
| MEVINPHOS | 7786-34-7 | 0.087 | 0.019 | E | 0.24 | 0.053 | E | 8.7 | 1.9 | E | 24 | 5.3 | E | 0.087 | 0.019 | E | 0.24 | 0.053 | E | NA |
| MONOCHLOROACETIC ACID (HAA) | 79-11-8 | 6 | 0.67 | E | 6 | 0.67 | E | 600 | 67 | E | 600 | 67 | E | 6 | 0.67 | E | 6 | 0.67 | E | NA |
| NAPHTHALENE | 91-20-3 | 10 | 25 | E | 10 | 25 | E | 1,000 | 2,500 | E | 1,000 | 2,500 | E | [3,000] 1,000 | [7,500] 2,500 | E | [3,000] 1,000 | [7,500] 2,500 | E | 30 |
| NAPHTHYLAMINE, 1- | 134-32-7 | [0.041] 0.036 | [0.33] 0.29 | E | [0.19] 0.15 | [1.5] 1.2 | E | [4.1] 3.6 | [33] 29 | E | [19] 15 | [150] 120 | E | [41] 3.6 | [330] 29 | E | [190] 15 | [1,500] 120 | E | 15 |
| NAPHTHYLAMINE, 2- | 91-59-8 | [0.041] 0.036 | [0.013] 0.012 | E | [0.19] 0.15 | [0.062] 0.049 | E | [4.1] 3.6 | [1.3] 1.2 | E | [19] 15 | [6.2] 4.9 | E | [41] 36 | [13] 12 | E | [190] 150 | [62] 49 | E | NA |
| NAPROPAMIDE | 15299-99-7 | 420 | 970 | E | 1,200 | 2,800 | E | 7,000 | 16,000 | E | 7,000 | 16,000 | E | 420 | 970 | E | 1,200 | 2,800 | E | 30 |
| NITROANILINE, O- | 88-74-4 | [42] 0.011 | [8] 0.002 | E | [120] 0.044 | [21] 0.0079 | E | [4,200] 1.1 | [750] 0.2 | E | [12,000] 4.4 | [2,100] 0.79 | E | [42] 0.011 | [8] 0.002 | E | [120] 0.044 | [21] 0.0079 | E | NA |
| NITROANILINE, P- | 100-01-6 | [3.7] 3.3 | [0.55] 0.49 | E | [17] 14 | [2.5] 2.1 | E | [370] 330 | [55] 49 | E | [1,700] 1,400 | [250] 210 | E | [3.7] 3.3 | [0.55] 0.49 | E | [17] 14 | [2.5] 2.1 | E | NA |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | | | TDS > 2500 mg/L | | | | | | | | | | | | |
| | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | |
| | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | |
| NITROBENZENE | 98-95-3 | [8.3] 0.12 | [3.6] 0.052 | E | [23] 0.63 | [10] 0.27 | E | [830] 12 | [360] 5.2 | E | [2,300] 63 | [1,000] 27 | E | [8,300] 12 | [3,600] 5.2 | E | [10,000] 63 | [10,000] 27 | C | NA |
| NITROGUANIDINE | 556-88-7 | 70 | 7.8 | E | 70 | 7.8 | E | 7,000 | 780 | E | 7,000 | 780 | E | 70 | 7.8 | E | 70 | 7.8 | E | NA |
| NITROPHENOL, 2- | 88-75-5 | [33] 28 | [6.7] 5.7 | E | [93] 78 | [19] 16 | E | [3,300] 2,800 | [670] 570 | E | [9,300] 7,800 | [1,900] 1,600 | E | [33,000] 2,800 | [6,700] 570 | E | [93,000] 7,800 | [19,000] 1,600 | E | NA |
| NITROPHENOL, 4- | 100-02-7 | 6 | 4.1 | E | 6 | 4.1 | E | 600 | 410 | E | 600 | 410 | E | [6,000] 600 | [4,100] 410 | E | [6,000] 600 | [4,100] 410 | E | NA |
| NITROPROPANE, 2- | 79-46-9 | 0.0018 | 0.00029 | E | 0.0093 | 0.0015 | E | 0.18 | 0.029 | E | 0.93 | 0.15 | E | 0.018 | 0.0029 | E | 0.093 | 0.015 | E | NA |
| NITROSODIETHYLAMINE, N- | 55-18-5 | 0.000045 | 0.0000079 | E | 0.00058 | 0.0001 | E | 0.0045 | [0.00008] 0.00079 | E | 0.058 | 0.01 | E | 0.00045 | [0.00008] 0.000079 | E | 0.0058 | 0.001 | E | NA |
| NITROSODIMETHYLAMINE, N- | 62-75-9 | 0.00014 | 0.000019 | E | 0.0018 | 0.00024 | E | 0.014 | 0.0019 | E | 0.18 | 0.024 | E | 0.0014 | 0.00019 | E | 0.018 | 0.0024 | E | NA |
| NITROSO-DI-N-BUTYLAMINE, N- | 924-16-3 | [0.014] 0.0031 | [0.017] 0.0038 | E | [0.063] 0.016 | [0.078] 0.02 | E | [1.4] 0.31 | [1.7] 0.38 | E | [6.3] 1.6 | [7.8] 2 | E | [14] 0.31 | [17] 0.38 | E | [63] 1.6 | [78] 2 | E | NA |
| NITROSODI-N-PROPYLAMINE, N- | 621-64-7 | [0.01] 0.0025 | [0.0014] 0.00035 | E | [0.049] 0.013 | [0.0068] 0.0018 | E | [1] 0.25 | [0.14] 0.035 | E | [4.9] 1.3 | [0.68] 0.18 | E | [10] 0.025 | [1.4] 0.0035 | E | [49] 0.13 | [6.8] 0.018 | E | NA |
| NITROSODIPHENYLAMINE, N- | 86-30-6 | [15] 1.9 | [23] 3 | E | [69] 9.6 | [110] 15 | E | [1,500] 190 | [2,300] 300 | E | [3,500] 960 | [5,500] 1,500 | E | [3,500] 190 | [5,500] 300 | E | [3,500] 960 | [5,500] 1,500 | E | 30 |
| NITROSO-N-ETHYLUREA, N- | 759-73-9 | [0.00084] 0.00079 | [0.000097] 0.000091 | E | [0.013] 0.01 | [0.0015] 0.0012 | E | [0.08] 0.079 | [0.0097] 0.0091 | E | [1.3] 1 | [0.15] 0.12 | E | [0.8] 0.79 | [0.097] 0.091 | E | [13] 10 | [1.5] 1.2 | E | NA |
| OCTYL PHTHALATE, DI-N- | 117-84-0 | [42] 35 | 10,000 | C | [120] 97 | 10,000 | C | 300 | 10,000 | C | 300 | 10,000 | C | 300 | 10,000 | C | 300 | 10,000 | C | 5 |
| OXAMYL (VYDATE) | 23135-22-0 | 20 | 2.6 | E | 20 | 2.6 | E | 2,000 | 260 | E | 2,000 | 260 | E | 20 | 2.6 | E | 20 | 2.6 | E | NA |
| PARAQUAT | 1910-42-5 | 3 | 120 | E | 3 | 120 | E | 300 | 12,000 | E | 300 | 12,000 | E | 3 | 120 | E | 3 | 120 | E | 15 |

[1] For other options see Section 250.308
All concentrations in mg/kg
E – Number calculated by the soil to groundwater equation is section 250.308
C – Cap
NA – The soil buffer distance option is not available for this substance
**[THMs – The values listed for trihalomethanes (THMs) are the total for all THMs combined.]**
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**B. Soil to Groundwater Numeric Values[1]**

| REGULATED SUBSTANCE | CASRN | Used Aquifers | | | | | | | | | | Nonuse Aquifers | | | | | Soil Buffer Distance (feet) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | | | TDS > 2500 mg/L | | | | | | | | | |
| | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | Residential | | Nonresidential | | |
| | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | |
| PARATHION | 56-38-2 | [25] 0.1 | [150] 0.59 | E | [70] 0.29 | [410] 1.7 | E | [2,000] 10 | [10,000] 59 | [C] E | [2,000] 29 | [10,000] 170 | [C] E | [25] 0.1 | [150] 0.59 | E | [70] 0.29 | [410] 1.7 | E | 15 |
| PCBS, TOTAL (POLYCHLORINATED BIPHENLYS) (AROCLORS) | 1336-36-3 | 0.05 | 9.8 | E | 0.05 | 9.8 | E | 5 | 980 | E | 5 | 980 | E | 0.05 | 9.8 | E | 0.05 | 9.8 | E | 10 |
| PCB-1016 (AROCLOR) | 12674-11-2 | [0.037] 0.24 | [10] 66 | E | [0.17] 0.68 | [47] 190 | E | [4] 24 | [1,000] 6,600 | E | [17] 25 | [4,700] 6,900 | E | [0.04] 0.24 | [10] 66 | E | [0.17] 0.68 | [47] 190 | E | 10 |
| PCB-1221 (AROCLOR) | 11104-28-2 | [0.037] 0.033 | [0.18] 0.16 | E | [0.17] 0.14 | [0.83] 0.68 | E | [3.7] 3.3 | [18] 16 | E | [17] 14 | [83] 68 | E | [0.037] 0.033 | [0.18] 0.16 | E | [0.17] 0.14 | [0.83] 0.68 | E | 20 |
| PCB-1232 (AROCLOR) | 11141-16-5 | [0.037] 0.033 | [0.14] 0.13 | E | [0.17] 0.14 | [0.7] 0.54 | E | [3.7] 3.3 | [14] 13 | E | [17] 14 | [66] 54 | E | [0.037] 0.033 | [0.14] 0.13 | E | [0.17] 0.14 | [0.7] 0.54 | E | 20 |
| PCB-1242 (AROCLOR) | 53469-21-9 | [0.037] 0.033 | 4 | E | [0.17] 0.14 | [20] 17 | E | [3.7] 3.3 | [440] 400 | E | 10 | 1,200 | E | [0.037] 0.033 | 4 | E | [0.17] 0.14 | [20] 17 | E | 10 |
| PCB-1248 (AROCLOR) | 12672-29-6 | [0.037] 0.033 | [18] 16 | E | [0.17] 0.14 | [81] 67 | E | [3.7] 3.3 | [1,800] 1,600 | E | 5.4 | 2,600 | E | [0.037] 0.033 | [18] 16 | E | [0.17] 0.14 | [81] 67 | E | 10 |
| PCB-1254 (AROCLOR) | 11097-69-1 | [0.037] 0.069 | [75] 140 | E | [0.17] 0.19 | [340] 380 | E | [3.7] 5.7 | [7,500] 10,000 | [E] C | 5.7 | 10,000 | C | [0.037] 0.069 | [75] 140 | E | [0.17] 0.19 | [340] 380 | E | 5 |
| PCB-1260 (AROCLOR) | 11096-82-5 | [0.037] 0.033 | [170] 150 | E | [0.17] 0.14 | [770] 630 | E | [3.7] 3.3 | [17,000] 15,000 | E | 8 | 36,000 | E | [0.037] 0.033 | [170] 150 | E | [0.17] 0.14 | [770] 630 | E | 5 |
| PEBULATE | 1114-71-2 | [210] 170 | [350] 290 | E | [580] 490 | [980] 830 | E | 9,200 | 10,000 | C | 9,200 | 10,000 | C | [210] 170 | [350] 290 | E | [580] 490 | [980] 830 | E | 30 |
| PENTACHLOROBENZENE | 608-93-5 | [3.3] 2.8 | [260] 220 | E | [9.3] 7.8 | [750] 620 | E | 74 | 5,900 | E | 74 | 5,900 | E | 74 | 5,900 | E | 74 | 5,900 | E | 10 |
| PENTACHLOROETHANE | 76-01-7 | [0.81] 0.72 | [3.9] 3.5 | E | [3.8] 3 | [19] 15 | E | [81] 72 | [390] 350 | E | [380] 300 | [1,900] 1,500 | E | [0.81] 0.72 | [3.9] 3.5 | E | [3.8] 3 | [19] 15 | E | 20 |
| PENTACHLORO NITROBENZENE | 82-68-8 | [0.28] 0.25 | [6] 5 | E | 1 | [26] 20 | E | [28] 25 | [560] 500 | E | 44 | 870 | E | 44 | 870 | E | 44 | 870 | E | 15 |
| PENTACHLOROPHENOL | 87-86-5 | 0.1 | 5 | E | 0.1 | 5 | E | 10 | 500 | E | 10 | 500 | E | 100 | 5,000 | E | 100 | 5,000 | E | 10 |

[1] For other options see Section 250.308
All concentrations in mg/kg
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | | | TDS > 2500 mg/L | | | | | | | | | | | | |
| | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | |
| | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | |
| PERFLUOROBUTANE SULFONATE (PFBS) | 375-73-5 | 69 | NA | C | 190 | NA | C | 6,900 | NA | C | 10,000 | NA | C | 69 | NA | C | 190 | NA | C | NA |
| PERFLUOROOCTANE SULFONATE (PFOS) | 1763-23-1 | 0.007 | NA | E | 0.007 | NA | E | 0.7 | NA | E | 0.7 | NA | E | 0.007 | NA | E | 0.007 | NA | E | NA |
| PERFLUOROOCTANOIC ACID (PFOA) | 335-67-1 | 0.007 | NA | E | 0.007 | NA | E | 0.7 | NA | E | 0.7 | NA | E | 0.007 | NA | E | 0.007 | NA | E | NA |
| PHENACETIN | 62-44-2 | [33] 30 | [13] 12 | E | [150] 120 | [58] 46 | E | [3,300] 3,000 | [1,300] 1,200 | E | [15,000] 12,000 | [5,800] 4,600 | E | [33,000] 30,000 | [13,000] 12,000 | E | 76,000 | 29,000 | E | NA |
| PHENANTHRENE | 85-01-8 | 110 | 10,000 | E | 110 | 10,000 | E | 110 | 10,000 | E | 110 | 10,000 | E | 110 | 10,000 | E | 110 | 10,000 | E | 10 |
| PHENOL | 108-95-2 | 200 | 33 | E | 200 | 33 | E | 20,000 | 3,300 | E | 20,000 | 3,300 | E | 20,000 | 3,300 | E | 20,000 | 3,300 | E | NA |
| PHENYL MERCAPTAN | 108-98-5 | [4,200] 3.5 | [6,400] 5.3 | E | [12] 9.7 | [18] 15 | E | [420] 350 | [640] 530 | E | [1,200] 970 | [1,800] 1,500 | E | [4.2] 3.5 | [6.4] 5.3 | E | [12] 9.7 | [18] 15 | E | 30 |
| PHENYLENEDIAMINE, M- | 108-45-2 | [25] 21 | [3.5] 3 | E | [70] 58 | [9.9] 8.2 | E | [2,500] 2,100 | [350] 300 | E | [7,000] 5,800 | [990] 820 | E | [25,000] 21,000 | [3,500] 3,000 | E | [70,000] 58,000 | [9,900] 8,200 | E | NA |
| PHENYLPHENOL, 2- | 90-43-7 | [38] 34 | [550] 490 | E | [180] 140 | [2,600] 2,000 | E | [3,800] 3,400 | [55,000] 49,000 | E | [18,000] 14,000 | 190,000 | C | [38,000] 34,000 | 190,000 | C | 70,000 | 190,000 | C | 15 |
| PHORATE | 298-02-2 | [0.83] 0.69 | [1.8] 1.5 | E | [2] 1.9 | [4.9] 4.1 | E | [83] 69 | [180] 150 | E | [230] 190 | [490] 410 | E | [0.83] 0.69 | [1.8] 1.5 | E | [2] 1.9 | [4.9] 4.1 | E | 30 |
| PHTHALIC ANHYDRIDE | 85-44-9 | [8,300] 4.2 | [2,600] 1.3 | E | [23,000] 18 | [7,100] 5.6 | E | [190,000] 420 | [190,000] 130 | [C] E | [190,000] 1,800 | [190,000] 560 | [C] E | [190,000] 420 | [190,000] 130 | [C] E | [190,000] 1,800 | [190,000] 560 | C | NA |
| PICLORAM | 1918-02-1 | 50 | 7.4 | E | 50 | 7.4 | E | 5,000 | 740 | E | 5,000 | 740 | E | 50 | 7.4 | E | 50 | 7.4 | E | NA |
| PROMETON | 1610-18-0 | 40 | 39 | E | 40 | 39 | E | 4,000 | 3,900 | E | 4,000 | 3,900 | E | 40 | 39 | E | 40 | 39 | E | NA |
| PRONAMIDE | 23950-58-5 | [310] 260 | [190] 160 | E | [880] 730 | [540] 450 | E | 1,500 | 920 | E | 1,500 | 920 | E | [310] 260 | [190] 160 | E | [880] 730 | [540] 450 | E | NA |
| PROPACHLOR | 1918-16-7 | 0.01 | 0.0046 | E | 0.01 | 0.0046 | E | 1 | 0.46 | E | 1 | 0.46 | E | 1 | 0.46 | E | 1 | 0.46 | E | NA |
| PROPANIL | 709-98-8 | [21] 17 | [11] 8.7 | E | [58] 49 | [30] 25 | E | [2,100] 1,700 | [1,100] 870 | E | [5,800] 4,900 | [3,000] 2,500 | E | [21] 17 | [11] 8.7 | E | [58] 49 | [30] 25 | E | NA |
| PROPANOL, 2- (ISOPROPYL ALCOHOL) | 67-63-0 | 42 | 7.3 | E | 180 | 31 | E | 4,200 | 730 | E | 10,000 | 3,100 | E | 42 | [7] 7.3 | E | 180 | 31 | E | NA |

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All concentrations in mg/kg
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | | | TDS > 2500 mg/L | | | | | | | | | | | | |
| | | Residential | | | | Nonresidential | | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | |
| | | 100 X GW MSC | Generic Value | | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | |
| PROPAZINE | 139-40-2 | 1 | 0.5 | E | 1 | 0.5 | E | 100 | 50 | E | 100 | 50 | E | 1 | 0.5 | E | 1 | 0.5 | E | NA |
| PROPHAM | 122-42-9 | 10 | 2.4 | E | 10 | 2.4 | E | 1,000 | 240 | E | 1,000 | 240 | E | 10 | 2.4 | E | 10 | 2.4 | E | NA |
| PROPYLBENZENE, N- | 103-65-1 | 210 | 400 | E | 880 | 1,700 | E | 5,200 | 9,900 | E | 5,200 | 9,900 | E | 210 | 400 | E | 880 | 1,700 | E | 30 |
| PROPYLENE OXIDE | 75-56-9 | [0.3] 0.27 | [0.052] 0.047 | E | [1.4] 1.1 | [0.24] 0.19 | E | [30] 27 | [5.2] 4.7 | E | [140] 110 | [24] 19 | E | [0.3] 0.27 | [0.052] 0.047 | E | [1.4] 1.1 | [0.24] 0.19 | E | NA |
| PYRENE | 129-00-0 | 13 | 2,200 | E | 13 | 2,200 | E | 13 | 2,200 | E | 13 | 2,200 | E | 13 | 2,200 | E | 13 | 2,200 | E | 10 |
| PYRETHRUM | 8003-34-7 | 35 | 4.4 | E | 35 | 4.4 | E | 35 | 4.4 | E | 35 | 4.4 | E | 35 | 4.4 | E | 35 | 4.4 | E | NA |
| PYRIDINE | 110-86-1 | [4.2] 3.4 | [0.47] 0.39 | E | [12] 9.7 | [1.3] 1.1 | E | [420] 350 | [47] 39 | E | [1,200] 970 | [130] 110 | E | [42] 35 | [4.7] 3.9 | E | [120] 97 | [13] 11 | E | NA |
| QUINOLINE | 91-22-5 | [0.024] 0.022 | [0.081] 0.074 | E | [0.11] 0.091 | [0.37] 0.31 | E | [2.4] 2.2 | [8.1] 7.4 | E | [11] 9.1 | [37] 31 | E | [24] 22 | [81] 74 | E | [110] 91 | [370] 310 | E | 20 |
| QUIZALOFOP (ASSURE) | 76578-14-8 | 30 | 47 | E | 30 | 47 | E | 30 | 47 | E | 30 | 47 | E | 30 | 47 | E | 30 | 47 | E | 30 |
| RDX | 121-82-4 | 0.2 | 0.057 | E | 0.2 | 0.057 | E | 20 | 5.7 | E | 20 | 5.7 | E | 0.2 | 0.057 | E | 0.2 | 0.057 | E | NA |
| RESORCINOL | 108-46-3 | [8,300] 6,900 | [970] 800 | E | [23,000] 19,000 | [2,700] 2,200 | E | 190,000 | [97,000] 80,000 | E | 190,000 | 190,000 | C | [8,300] 6,900 | [970] 800 | E | [23,000] 19,000 | [2,700] 2,200 | E | NA |
| RONNEL | 299-84-3 | [210] 170 | [330] 270 | E | [580] 490 | [910] 760 | E | 4,000 | 6,200 | E | 4,000 | 6,200 | E | [210] 170 | [330] 270 | E | [580] 490 | [910] 760 | E | 30 |
| SIMAZINE | 122-34-9 | 0.4 | 0.15 | E | 0.4 | 0.15 | E | 40 | 15 | E | 40 | 15 | E | 0.4 | 0.15 | E | 0.4 | 0.15 | E | NA |
| STRYCHNINE | 57-24-9 | [1.3] 1 | [1.1] 0.81 | E | [3.5] 2.9 | [2.8] 2.4 | E | [130] 100 | [110] 81 | E | [350] 290 | [280] 240 | E | [1,300] 1,000 | [1,100] 810 | E | [3,500] 2,900 | [2,800] 2,400 | E | NA |
| STYRENE | 100-42-5 | 10 | 24 | E | 10 | 24 | E | 1,000 | 2,400 | E | 1,000 | 2,400 | E | 1,000 | 2,400 | E | 1,000 | 2,400 | E | 30 |
| TEBUTHIURON | 34014-18-1 | 50 | 83 | E | 50 | 83 | E | 5,000 | 8,300 | E | 5,000 | 8,300 | E | 50 | 83 | E | 50 | 83 | E | 30 |
| TERBACIL | 5902-51-2 | 9 | 2.2 | E | 9 | 2.2 | E | 900 | 220 | E | 900 | 220 | E | 9 | 2.2 | E | 9 | 2.2 | E | NA |
| TERBUFOS | 13071-79-9 | 0.04 | 0.055 | E | 0.04 | 0.055 | E | 4 | 5.5 | E | 4 | 5.5 | E | 0.04 | 0.055 | E | 0.04 | 0.055 | E | 30 |
| TETRACHLOROBENZENE, 1,2,4,5- | 95-94-3 | [1.3] 1 | [6] 4.6 | E | [3.5] 2.9 | [16] 13 | E | 58 | 270 | E | 58 | 270 | E | 58 | 270 | E | 58 | 270 | E | 20 |
| TETRACHLORODIBENZO-P-DIOXIN, 2,3,7,8- (TCDD) | 1746-01-6 | 0.000003 | 0.032 | E | 0.000003 | 0.032 | E | 0.0003 | 3.2 | E | 0.0003 | 3.2 | E | 0.0019 | 20 | E | 0.0019 | 20 | E | 5 |
| TETRACHLOROETHANE, 1,1,1,2- | 630-20-6 | 7 | 18 | E | 7 | 18 | E | 700 | 1,800 | E | 700 | 1,800 | E | 700 | 1,800 | E | 700 | 1,800 | E | 30 |
| TETRACHLOROETHANE, 1,1,2,2- | 79-34-5 | [0.08] 0.084 | 0.026 | E | 0.43 | 0.13 | E | [8] 8.4 | 2.6 | E | 43 | 13 | E | [8] 8.4 | 2.6 | E | 43 | 13 | E | NA |

[1] For other options see Section 250.308
All concentrations in mg/kg
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | | | TDS > 2500 mg/L | | | | | | | | | | | | |
| | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | |
| | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | |
| TETRACHLOROETHYLENE (PCE) | 127-18-4 | 0.5 | 0.43 | E | 0.5 | 0.43 | E | 50 | 43 | E | 50 | 43 | E | 5 | 4.3 | E | 5 | 4.3 | E | NA |
| TETRACHLOROPHENOL, 2,3,4,6- | 58-90-2 | [130] 100 | [2,000] 1,600 | E | [350] 290 | [5,500] 4,500 | E | [13,000] 10,000 | [190,000] 160,000 | [C] E | 18,000 | 190,000 | C | 18,000 | 190,000 | C | 18,000 | 190,000 | C | 15 |
| TETRAETHYL LEAD | 78-00-2 | [0.00042] 0.00035 | [0.0052] 0.0043 | E | [0.0012] 0.00097 | [0.015] 0.012 | E | [0.042] 0.035 | [0.52] 0.43 | E | [0.1] 0.097 | [1.5] 1.2 | E | [0.42] 0.35 | [0.52] 4.3 | E | [1] 0.97 | [15] 12 | E | 15 |
| TETRAETHYLDITHIO PYROPHOSPHATE | 3689-24-5 | [2.1] 1.7 | [3.1] 2.5 | E | [5.8] 4.9 | [8.6] 7.3 | E | [210] 170 | [310] 250 | E | [580] 490 | [860] 730 | E | [2.1] 1.7 | [3.1] 2.5 | E | [5.8] 4.9 | [8.6] 7.3 | E | 30 |
| TETRAHYDROFURAN | 109-99-9 | [2.6] 2.5 | [0.57] 0.55 | E | 13 | 2.8 | E | [260] 250 | [57] 55 | E | 1,300 | 280 | E | [2.6] 2.5 | [0.57] 0.55 | E | 13 | 2.8 | E | NA |
| THIOFANOX | 39196-18-4 | [1.3] 1 | [0.14] 0.11 | E | [3.5] 2.9 | [0.39] 0.32 | E | [130] 100 | [14] 11 | E | [350] 290 | [39] 32 | E | [1.3] 1 | [0.14] 0.11 | E | [3.5] 2.9 | [0.39] 0.32 | E | NA |
| THIRAM | 137-26-8 | [21] 52 | [55] 140 | E | [58] 150 | [150] 390 | E | [2,100] 3,000 | [5,500] 7,800 | E | 3,000 | 7,800 | E | [21] 52 | [55] 140 | E | [58] 150 | [150] 390 | E | 20 |
| TOLUENE | 108-88-3 | 100 | 44 | E | 100 | 44 | E | 10,000 | 4,400 | E | 10,000 | 4,400 | E | 10,000 | 4,400 | E | 10,000 | 4,400 | E | NA |
| TOLUIDINE, M- | 108-44-1 | [4.6] 4.1 | [2.1] 1.9 | E | [21] 17 | [9.7] 7.8 | E | [460] 410 | [210] 190 | E | [2,100] 1,700 | [970] 780 | E | [4.6] 4.1 | [2.1] 1.9 | E | [21] 17 | [9.7] 7.8 | E | NA |
| TOLUIDINE, O- | 95-53-4 | [4.6] 4.1 | [5.2] 4.7 | E | [21] 17 | [24] 19 | E | [460] 410 | [520] 470 | E | [2,100] 1,700 | [2,400] 1,900 | E | [4,600] 4,100 | [5,200] 4,700 | E | 10,000 | 10,000 | C | NA |
| TOLUIDINE, P- | 106-49-0 | [2.4] 2.2 | [2.2] 2 | E | [11] 9.1 | [10] 8.3 | E | [240] 220 | [220] 200 | E | [1,100] 910 | [1,000] 830 | E | [2.4] 2.2 | [2.2] 2 | E | [11] 9.1 | [10] 8.3 | E | NA |
| TOXAPHENE | 8001-35-2 | 0.3 | 1.2 | E | 0.3 | 1.2 | E | 30 | 120 | E | 30 | 120 | E | 0.3 | 1.2 | E | 0.3 | 1.2 | E | 20 |
| TRIALLATE | 2303-17-5 | [54] 0.091 | [280] 0.47 | E | [150] 0.38 | [770] 1.9 | E | [400] 9.1 | [2,000] 47 | E | [400] 38 | [2,000] 190 | E | [54] 0.091 | [280] 0.47 | E | [150] 0.38 | [770] 1.9 | E | 15 |
| TRIBROMOMETHANE (BROMOFORM) (THM) | 75-25-2 | 8 | 3.5 | E | 8 | 3.5 | E | 800 | 350 | E | 800 | 350 | E | 800 | 350 | E | 800 | 350 | E | NA |
| TRICHLORO-1,2,2-TRIFLUOROETHANE, 1,1,2- | 76-13-1 | [6,300] 1,100 | [10,000] 3,400 | [C] E | [10,000] 4,400 | 10,000 | C | 10,000 | 10,000 | C | 10,000 | 10,000 | C | 10,000 | 10,000 | C | 10,000 | 10,000 | C | 20 |

[1] For other options see Section 250.308
All concentrations in mg/kg
E – Number calculated by the soil to groundwater equation is section 250.308
C – Cap
NA – The soil buffer distance option is not available for this substance
**[THMs – The values listed for trihalomethanes (THMs) are the total for all THMs combined.]**
**[HAAs – The values listed for haloacetic acids (HAAs) are the total for all HAAs combined.]**

**Appendix A**
**Table 3 – Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil**
**B. Soil to Groundwater Numeric Values[1]**

| REGULATED SUBSTANCE | CASRN | Used Aquifers | | | | | | | | | | Nonuse Aquifers | | | | | | Soil Buffer Distance (feet) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | TDS > 2500 mg/L | | | | | | | | | | | | |
| | | Residential | | Nonresidential | | Residential | | Nonresidential | | | | Residential | | Nonresidential | | | | |
| | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | |
| TRICHLOROACETIC ACID (HAA) | 76-03-9 | [2] 6 | [0.32] 0.97 | E | [2] 6 | [0.32] 0.97 | E | [200] 600 | [32] 97 | E | [200] 600 | [32] 97 | E | [2] 6 | [0.32] 0.97 | E | [2] 6 | [0.32] 0.97 | E | NA |
| TRICHLOROBENZENE, 1,2,4- | 120-82-1 | 7 | 27 | E | 7 | 27 | E | 700 | 2,700 | E | 700 | 2,700 | E | [4,400] 700 | [10,000] 2,700 | [C] E | [4,400] 700 | [10,000] 2,700 | [C] E | 20 |
| TRICHLOROBENZENE, 1,3,5- | 108-70-3 | 4 | 31 | E | 4 | 31 | E | 400 | 3,100 | E | 400 | 3,100 | E | 4 | 31 | E | 4 | 31 | E | 15 |
| TRICHLOROETHANE, 1,1,1- | 71-55-6 | 20 | 7.2 | E | 20 | 7.2 | E | 2,000 | 720 | E | 2,000 | 720 | E | 200 | 72 | E | 200 | 72 | E | NA |
| TRICHLOROETHANE, 1,1,2- | 79-00-5 | 0.5 | 0.15 | E | 0.5 | 0.15 | E | 50 | 15 | E | 50 | 15 | E | 5 | 1.5 | E | 5 | 1.5 | E | NA |
| TRICHLOROETHYLENE (TCE) | 79-01-6 | 0.5 | 0.17 | E | 0.5 | 0.17 | E | 50 | 17 | E | 50 | 17 | E | 5 | 1.7 | E | 5 | 1.7 | E | NA |
| TRICHLOROPHENOL, 2,4,5- | 95-95-4 | [420] 350 | [2,600] 2,100 | E | [1,200] 970 | [7,300] 5,900 | E | [42,000] 35,000 | 190,000 | C | [100,000] 97,000 | 190,000 | C | 100,000 | 190,000 | C | 100,000 | 190,000 | C | 15 |
| TRICHLOROPHENOL, 2,4,6- | 88-06-2 | [4.2] 3.5 | [12] 10 | E | [12] 9.7 | [34] 28 | E | [420] 350 | [1,200] 1,000 | E | [1,200] 970 | [3,400] 2,800 | E | [4,200] 3,500 | [12,000] 10,000 | E | [12,000] 9,700 | [34,000] 28,000 | E | 20 |
| TRICHLOROPHENOXY ACETIC ACID, 2,4,5- (2,4,5-T) | 93-76-5 | 7 | 1.5 | E | 7 | 1.5 | E | 700 | 150 | E | 700 | 150 | E | 7,000 | 1,500 | E | 7,000 | 1,500 | E | NA |
| TRICHLOROPHENOXY PROPIONIC ACID, 2,4,5- (2,4,5-TP)(SILVEX) | 93-72-1 | 5 | 22 | E | 5 | 22 | E | 500 | 2,200 | E | 500 | 2,200 | E | 5 | 22 | E | 5 | 22 | E | 20 |
| TRICHLOROPROPANE, 1,1,2- | 598-77-6 | [21] 17 | [3.6] 2.9 | E | [58] 49 | [9.9] 8.4 | E | [2,100] 1,700 | [360] 290 | E | [5,800] 4,900 | [990] 840 | E | [21] 17 | [3.6] 2.9 | E | [58] 49 | [9.9] 8.4 | E | NA |
| TRICHLOROPROPANE, 1,2,3- | 96-18-4 | 4 | 3.2 | E | 4 | 3.2 | E | 400 | 320 | E | 400 | 320 | E | 400 | 320 | E | 400 | 320 | E | NA |
| TRICHLOROPROPENE, 1,2,3- | 96-19-5 | 0.063 | 0.037 | E | 0.26 | 0.15 | E | 6.3 | 3.7 | E | 26 | 15 | E | 0.063 | 0.037 | E | 0.26 | 0.15 | E | NA |
| TRIETHYLAMINE | 121-44-8 | 1.5 | 0.36 | E | 6.2 | 1.5 | E | 150 | 36 | E | 620 | 150 | E | 1.5 | 0.36 | E | 6.2 | 1.5 | E | NA |
| TRIETHYLENE GLYCOL | 112-27-6 | [8,300] 6,900 | [1,000] 870 | E | 10,000 | [2,900] 2,400 | E | 10,000 | 10,000 | C | 10,000 | 10,000 | C | [8,300] 6,900 | [1,000] 870 | E | 10,000 | [2,900] 2,400 | E | NA |
| TRIFLURALIN | 1582-09-8 | 1 | 1.9 | E | 1 | 1.9 | E | 100 | 190 | E | 100 | 190 | E | 1 | 1.9 | E | 1 | 1.9 | E | 30 |
| TRIMETHYLBENZENE, 1,3,4- (TRIMETHYLBENZENE, 1,2,4- ) | 95-63-6 | [1.5] 13 | [8.4] 73 | E | [6.2] 53 | [35] 300 | E | [150] 1,300 | [840] 7,300 | E | [620] 5,300 | [3,500] 10,000 | [E] C | [150] 1,300 | [840] 7,300 | E | [620] 5,300 | [3,500] 10,000 | [E] C | 15 |

[1] For other options see Section 250.308
All concentrations in mg/kg
E – Number calculated by the soil to groundwater equation is section 250.308
C – Cap
NA – The soil buffer distance option is not available for this substance
**[THMs – The values listed for trihalomethanes (THMs) are the total for all THMs combined.]**
**[HAAs – The values listed for haloacetic acids (HAAs) are the total for all HAAs combined.]**

**Appendix A**
**Table 3 – Medium-Specific Concentrations (MSCs) for Organic Regulated Substances In Soil**
**B. Soil to Groundwater Numeric Values[1]**

| REGULATED SUBSTANCE | CASRN | Used Aquifers | | | | | | | | | | | | Nonuse Aquifers | | | | | | Soil Buffer Distance (feet) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS ≤ 2500 mg/L | | | | | | TDS > 2500 mg/L | | | | | | Residential | | | | Nonresidential | | | |
| | | Residential | | | Nonresidential | | | Residential | | | Nonresidential | | | | | | | | | | |
| | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | 100 X GW MSC | Generic Value | | | 100 X GW MSC | Generic Value | | | |
| TRIMETHYLBENZENE, 1,3,5- | 108-67-8 | [42] 13 | [74] 23 | E | [120] 53 | [210] 93 | E | [4,200] 1,300 | [7,400] 2,300 | E | 4,900 | 8,600 | E | [42] 13 | [74] 23 | E | | [120] 53 | [210] 93 | E | 30 |
| TRINITROGLYCEROL (NITROGLYCERIN) | 55-63-0 | 0.5 | 0.2 | E | 0.5 | 0.2 | E | 50 | 20 | E | 50 | 20 | E | 50 | 20 | E | | 50 | 20 | E | NA |
| TRINITROTOLUENE, 2,4,6- | 118-96-7 | 0.2 | 0.023 | E | 0.2 | 0.023 | E | 20 | 2.3 | E | 20 | 2.3 | E | 0.2 | 0.023 | E | | 0.2 | 0.023 | E | NA |
| VINYL ACETATE | 108-05-4 | 42 | 5 | E | 180 | 21 | E | 4,200 | 500 | E | 10,000 | 2,100 | E | 42 | 5 | E | | 180 | 21 | E | NA |
| VINYL BROMIDE (BROMOETHENE) | 593-60-2 | 0.15 | 0.073 | E | 0.78 | 0.38 | E | 15 | 7.3 | E | 78 | 38 | E | 1.5 | 0.73 | E | | 7.8 | 3.8 | E | NA |
| VINYL CHLORIDE | 75-01-4 | 0.2 | 0.027 | E | 0.2 | 0.027 | E | 20 | 2.7 | E | 20 | 2.7 | E | 2 | 0.27 | E | | 2 | 0.27 | E | NA |
| WARFARIN | 81-81-2 | [1.3] 1 | [3.1] 2.4 | E | [3.5] 2.9 | [8.4] 6.9 | E | [130] 100 | [310] 240 | E | [350] 290 | [840] 690 | E | [1,300] 1,000 | [3,100] 2,400 | E | | 1,700 | 4,100 | E | 30 |
| XYLENES (TOTAL) | 1330-20-7 | 1,000 | 990 | E | 1,000 | 990 | E | 10,000 | 10,000 | C | 10,000 | 10,000 | C | 10,000 | 10,000 | C | | 10,000 | 10,000 | C | NA |
| ZINEB | 12122-67-7 | [210] 170 | [33] 27 | E | [580] 490 | [92] 78 | E | 1,000 | 160 | E | 1,000 | 160 | E | [210] 170 | [33] 27 | E | | [580] 490 | [92] 78 | E | NA |
| | | | | | | | | | | | | | | | | | | | | | |

[1] For other options see Section 250.308
All concentrations in mg/kg
E – Number calculated by the soil to groundwater equation is section 250.308
C – Cap
NA – The soil buffer distance option is not available for this substance
**[THMs – The values listed for trihalomethanes (THMs) are the total for all THMs combined.]**
**[HAAs – The values listed for haloacetic acids (HAAs) are the total for all HAAs combined.]**

**Appendix A**
**Table 4 – Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Soil**
**A. Direct Contact Numeric Values**

| REGULATED SUBSTANCE | CASRN | Residential MSC 0-15 feet | | Nonresidential MSCs | | | |
|---|---|---|---|---|---|---|---|
| | | | | Surface Soil 0-2 feet | | Subsurface Soil 2-15 feet | |
| ALUMINUM | 7429-90-5 | 190,000 | C | 190,000 | C | 190,000 | C |
| ANTIMONY | 7440-36-0 | 88 | G | 1,300 | G | 190,000 | C |
| ARSENIC | 7440-38-2 | 12 | G | 61 | G | 190,000 | C |
| BARIUM AND COMPOUNDS | 7440-39-3 | 44,000 | G | 190,000 | C | 190,000 | C |
| BERYLLIUM | 7440-41-7 | 440 | G | 6,400 | G | 190,000 | C |
| BORON AND COMPOUNDS | 7440-42-8 | 44,000 | G | 190,000 | C | 190,000 | C |
| CADMIUM | 7440-43-9 | 110 | G | 1,600 | G | 190,000 | C |
| CHROMIUM III | 16065-83-1 | 190,000 | C | 190,000 | C | 190,000 | C |
| CHROMIUM VI | 18540-29-9 | **[4] 37** | G | **[220] 180** | G | **[20,000] 140,000** | N |
| COBALT | 7440-48-4 | 66 | G | 960 | G | 190,000 | N |
| COPPER | 7440-50-8 | **[8,100] 7,200** | G | **[120,000] 100,000** | G | 190,000 | C |
| CYANIDE, FREE | 57-12-5 | 130 | G | 1,900 | G | 190,000 | C |
| FLUORIDE | 16984-48-8 | 8,800 | G | 130,000 | G | 190,000 | C |
| IRON | 7439-89-6 | 150,000 | G | 190,000 | C | 190,000 | C |
| LEAD | 7439-92-1 | **[500] 420** | U | **[1,000] 2,500** | **[S] A** | 190,000 | C |
| LITHIUM | 7439-93-2 | 440 | G | 6,400 | G | 190,000 | C |
| MANGANESE | 7439-96-5 | **[10,000] 31,000** | G | **[150,000] 190,000** | **[G] C** | 190,000 | C |
| MERCURY | 7439-97-6 | 35 | G | 510 | G | 190,000 | C |
| MOLYBDENUM | 7439-98-7 | 1,100 | G | 16,000 | G | 190,000 | C |
| NICKEL | 7440-02-0 | 4,400 | G | 64,000 | G | 190,000 | C |
| PERCHLORATE | 7790-98-9 | 150 | G | 2,200 | G | 190,000 | C |
| SELENIUM | 7782-49-2 | 1,100 | G | 16,000 | G | 190,000 | C |
| SILVER | 7440-22-4 | 1,100 | G | 16,000 | G | 190,000 | C |
| STRONTIUM | 7440-24-6 | 130,000 | G | 190,000 | C | 190,000 | C |
| THALLIUM | 7440-28-0 | **[2] 2.2** | G | 32 | G | 190,000 | C |
| TIN | 7440-31-5 | 130,000 | G | 190,000 | C | 190,000 | C |
| VANADIUM | 7440-62-2 | 15 | G | 220 | G | 190,000 | C |
| ZINC | 7440-66-6 | 66,000 | G | 190,000 | C | 190,000 | C |

All concentrations in mg/kg
R – Residential
NR – Non-Residential
G – Ingestion
N – Inhalation
C- Cap
U – **[UBK Model] IEUBK Model**
**[S – SEGH Model] A – Adult Lead Model**
NA – Not Applicable

**Appendix A**
**Table 4 – Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Soil**
**B. Soil to Groundwater Numeric Values[1]**

| REGULATED SUBSTANCE | CASRN | Used Aquifers | | | | | | | | Nonuse Aquifers | | | | Soil Buffer Distance (feet) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS < = 2500 mg/L | | | | TDS > 2500 mg/L | | | | | | | | |
| | | R | | NR | | R | | NR | | R | | NR | | |
| | | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | |
| [ALUMINUM] | [7429-90-5] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] |
| ANTIMONY | 7440-36-0 | 0.6 | 27 | 0.6 | 27 | 60 | 2,700 | 60 | 2,700 | 600 | 27,000 | 600 | 27,000 | 15 |
| ARSENIC | 7440-38-2 | 1 | 29 | 1 | 29 | 100 | 2,900 | 100 | 2,900 | 1,000 | 29,000 | 1,000 | 29,000 | 15 |
| BARIUM AND COMPOUNDS | 7440-39-3 | 200 | 8,200 | 200 | 8,200 | 20,000 | 190,000 | 20,000 | 190,000 | 190,000 | 190,000 | 190,000 | 190,000 | 15 |
| BERYLLIUM | 7440-41-7 | 0.4 | 320 | 0.4 | 320 | 40 | 32,000 | 40 | 32,000 | 400 | 190,000 | 400 | 190,000 | 10 |
| BORON AND COMPOUNDS | 7440-42-8 | 600 | 1,900 | 600 | 1,900 | 60,000 | 190,000 | 60,000 | 190,000 | 190,000 | 190,000 | 190,000 | 190,000 | 30 |
| CADMIUM | 7440-43-9 | 0.5 | 38 | 0.5 | 38 | 50 | 3,800 | 50 | 3,800 | 500 | 38,000 | 500 | 38,000 | 15 |
| CHROMIUM (III) | 16065-83-1 | 10 | 190,000 | 10 | 190,000 | 1,000 | 190,000 | 1,000 | 190,000 | 10,000 | 190,000 | 10,000 | 190,000 | 5 |
| CHROMIUM (VI) | 18540-29-9 | 10 | 190 | 10 | 190 | 1,000 | 19,000 | 1,000 | 19,000 | 10,000 | 190,000 | 10,000 | 190,000 | 15 |
| COBALT | 7440-48-4 | 1 | [59] 45 | [4] 2.9 | [160] 130 | [130] 100 | [5,900] 4,500 | [350] 290 | [16,000] 13,000 | [1,300] 1,000 | [59,000] 45,000 | [3,500] 2,900 | [160,000] 130,000 | 15 |
| COPPER | 7440-50-8 | [NA] 100 | [NA] 43,000 | [NA] 100 | [NA] 43,000 | [NA] 10,000 | [NA] 190,000 | [NA] 10,000 | [NA] 190,000 | [NA] 100,000 | [NA] 190,000 | [NA] 100,000 | [NA] 190,000 | [NA] 10 |
| CYANIDE, FREE | 57-12-5 | 20 | 200 | 20 | 200 | 2,000 | 20,000 | 2,000 | 20,000 | 20,000 | 190,000 | 20,000 | 190,000 | 20 |
| FLUORIDE | 16984-48-8 | 400 | 44 | 400 | 44 | 40,000 | 4,400 | 40,000 | 4,400 | 190,000 | 44,000 | 190,000 | 44,000 | NA |
| [IRON] | [7439-89-6] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] | [NA] |
| LEAD | 7439-92-1 | 0.5 | 450 | 0.5 | 450 | 50 | 45,000 | 50 | 45,000 | 500 | 190,000 | 500 | 190,000 | 10 |
| LITHIUM | 7439-93-2 | [8] 6.9 | [2,500] 2,100 | [23] 19 | [6,900] 5,700 | [830] 690 | 190,000 | [2,300] 1,900 | 190,000 | [8,300] 6,900 | 190,000 | [23,000] 19,000 | 190,000 | 10 |
| MANGANESE | 7439-96-5 | 30 | 2,000 | 30 | 2,000 | 3,000 | 190,000 | 3,000 | 190,000 | 30,000 | 190,000 | 30,000 | 190,000 | 1 |
| MERCURY | 7439-97-6 | 0.2 | 10 | 0.2 | 10 | 20 | 1,000 | 20 | 1,000 | 200 | 10,000 | 200 | 10,000 | 15 |
| MOLYBDENUM | 7439-98-7 | 4 | 650 | 4 | 650 | 400 | 65,000 | 400 | 65,000 | 4,000 | 190,000 | 4,000 | 190,000 | 15 |
| NICKEL | 7440-02-0 | 10 | 650 | 10 | 650 | 1,000 | 65,000 | 1,000 | 65,000 | 10,000 | 190,000 | 10,000 | 190,000 | 15 |
| PERCHLORATE | 7790-98-9 | 1.5 | 0.17 | 1.5 | 0.17 | 150 | 17 | 150 | 17 | 1,500 | 170 | 1,500 | 170 | NA |
| SELENIUM | 7782-49-2 | 5 | 26 | 5 | 26 | 500 | 2,600 | 500 | 2,600 | 5,000 | 26,000 | 5,000 | 26,000 | 20 |
| SILVER | 7440-22-4 | 10 | 84 | 10 | 84 | 1,000 | 8,400 | 1,000 | 8,400 | 10,000 | 84,000 | 10,000 | 84,000 | 20 |

[1]For other options see Section 250.308
All concentrations in mg/kg
R – Residential
NR – Non-Residential
NA – Not Applicable

**Appendix A**
**Table 4 – Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Soil**
**B. Soil to Groundwater Numeric Values[1]**

| REGULATED SUBSTANCE | CASRN | Used Aquifers | | | | | | | | Nonuse Aquifers | | | | Soil Buffer Distance (feet) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TDS < = 2500 mg/L | | | | TDS > 2500 mg/L | | | | | | | | |
| | | R | | NR | | R | | NR | | R | | NR | | |
| | | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | 100 X GW MSC | Generic Value | |
| STRONTIUM | 7440-24-6 | 400 | 44 | 400 | 44 | 40,000 | 4,400 | 40,000 | 4,400 | 190,000 | 44,000 | 190,000 | 44,000 | NA |
| THALLIUM | 7440-28-0 | 0.2 | 14 | 0.2 | 14 | 20 | 1,400 | 20 | 1,400 | 200 | 14,000 | 200 | 14,000 | 15 |
| TIN | 7440-31-5 | [2,500] 2,100 | 190,000 | [7,000] 5,800 | 190,000 | 190,000 | 190,000 | 190,000 | 190,000 | 190,000 | 190,000 | 190,000 | 190,000 | 10 |
| VANADIUM | 7440-62-2 | [0.29] 0.24 | [290] 240 | [0.82] 0.68 | [820] 680 | [29] 24 | [29,000] 24,000 | [82] 68 | [82,000] 68,000 | [290] 240 | 190,000 | [820] 680 | 190,000 | 5 |
| ZINC | 440-66-6 | 200 | 12,000 | 200 | 12,000 | 20,000 | 190,000 | 20,000 | 190,000 | 190,000 | 190,000 | 190,000 | 190,000 | 15 |

[1]For other options see Section 250.308
All concentrations in mg/kg
R – Residential
NR – Non-Residential
NA – Not Applicable

**Appendix A**
**Table 5 – Physical and Toxicological Properties**
**A. Organic Regulated Substances**

| Regulated Substance | CAS | RfDo (mg/kg-d) | | CSFo (mg/kg-d)$^{-1}$ | | RfCi (mg/m$^3$) | | IUR (µg/m$^3$)$^{-1}$ | | Koc | VOC? | Aqueous Sol (mg/L) | Aqueous Sol Reference[1] | TF Vol from Surface Soil | TF Vol from SubSurface Soil | Organic Liquid | Boiling Point (degrees C) | Degradation Coefficient (K)(yr$^{-1}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ACENAPHTHENE | 83-32-9 | 0.06 | I | | | | | | | 4900 | X | 3.8 | 1,5,6 | 17220 | 20833 | | 279 | 1.24 |
| ACENAPHTHYLENE | 208-96-8 | 0.06 | S | | | | | | | 4500 | X | 16.1 | 5,6,7 | 16493 | 19776 | | 280 | 2.11 |
| ACEPHATE | 30560-19-1 | [0.004] 0.0012 | [I] O | [0.0087] | [I] | | | | | 3 | | 818000 | 6 | | | | 340 | |
| ACETALDEHYDE | 75-07-0 | | | | | 0.009 | I | 0.0000022 | I | 4.1 | X | 1000000 | 1 | [13100] 13010 | [15100] 14945 | X | 20 | |
| ACETONE | 67-64-1 | 0.9 | I | | | 31 | D | | | 0.31 | X | 1000000 | 1 | [13100] 13007 | [15000] 14942 | X | 56 | 18.07 |
| ACETONITRILE | 75-05-8 | | | | | 0.06 | I | | | 0.5 | X | 1000000 | 1 | [13100] 13020 | [15000] 14958 | X | 82 | 4.50 |
| ACETOPHENONE | 98-86-2 | 0.1 | I | | | | | | | 170 | | 5500 | 1 | | | X | 203 | |
| ACETYLAMINO-FLUORENE, 2- (2AAF) | 53-96-3 | | | 3.8 | C | | | 0.0013 | C | 1600 | | 10.13 | 7 | | | | 303 | 0.69 |
| ACROLEIN | 107-02-8 | 0.0005 | I | | | 0.00002 | I | | | 0.56 | X | 208000 | 1,2,4 | [13100] 13012 | [15100] 14948 | X | 53 | 4.50 |
| ACRYLAMIDE | 79-06-1 | 0.002 | I | 0.5 | I | 0.006 | I | 0.0001 | I | 25 | X | 2151000 | 4 | [13000] 12981 | [15000] 14906 | | 193 | |
| ACRYLIC ACID | 79-10-7 | 0.5 | I | | | 0.001 | I | | | 29 | X | 1000000 | 2 | [13000] 12978 | [14900] 14902 | X | 141 | 1.39 |
| ACRYLONITRILE | 107-13-1 | 0.04 | D | 0.54 | I | 0.002 | I | 0.000068 | I | 11 | X | 73500 | 1 | [13100] 13004 | [15100] 14939 | X | 77 | 5.50 |
| ALACHLOR | 15972-60-8 | 0.01 | I | 0.056 | C | | | | | 110 | | 140 | 2 | | | | 378 | |
| ALDICARB | 116-06-3 | 0.001 | I | | | | | | | 22 | | 6000 | 2 | | | | 287 | 0.40 |
| ALDICARB SULFONE | 1646-88-4 | 0.001 | I | | | | | | | 10 | | 8000 | 5 | | | | 317 | |
| ALDICARB SULFOXIDE | 1646-87-3 | 0.001 | M | | | | | | | 0.22 | | 330000 | 5 | | | | 307 | |
| ALDRIN | 309-00-2 | 0.00003 | I | 17 | I | | | 0.0049 | I | 48000 | | 0.02 | 4,5,6 | | | | 330 | 0.22 |
| ALLYL ALCOHOL | 107-18-6 | 0.005 | I | | | 0.0001 | X | | | 3.2 | X | 1000000 | 2 | [13100] 13003 | [15000] 14937 | X | 97 | 18.07 |
| AMETRYN | 834-12-8 | 0.009 | I | | | | | | | 389 | | 185 | 5 | | | | 345 | |
| AMINOBIPHENYL, 4- | 92-67-1 | | | 21 | C | | | 0.006 | C | 110 | | 1200 | 5 | | | | 302 | 18.07 |
| AMITROLE | 61-82-5 | | | 0.94 | C | | | 0.00027 | C | 120 | | 280000 | 4 | | | | 258 | 0.69 |
| AMMONIA | 7664-41-7 | [0.97] 0.85 | H | | | [0.1] 0.5 | I | | | 3 | X | 310000 | 2,5,7 | [13100] 13098 | [15000] 15059 | X | -33 | |
| AMMONIUM SULFAMATE | 7773-06-0 | 0.2 | I | | | | | | | 3 | | 2160000 | 10 | | | | 603 | |
| ANILINE | 62-53-3 | 0.007 | P | 0.0057 | I | 0.001 | I | 0.0000016 | C | 190 | X | 33800 | 1 | [13000] 12959 | [14900] 14876 | X | 184 | |
| ANTHRACENE | 120-12-7 | 0.3 | I | | | | | | | 21000 | X | 0.066 | 1,5,6,7,8,9 | 30838 | 44562 | | 340 | 0.28 |
| ATRAZINE | 1912-24-9 | 0.035 | I | 0.23 | C | | | | | 130 | | 70 | 2,4,5 | | | | 313 | |

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Toxicity Value Sources:
C = California EPA [Cancer Potency Factor]
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**Appendix A**
**Table 5 – Physical and Toxicological Properties**
**A. Organic Regulated Substances**

| Regulated Substance | CAS | RfDo (mg/kg-d) | | CSFo (mg/kg-d)$^{-1}$ | | RfCi (mg/m$^3$) | | IUR (µg/m$^3$)$^{-1}$ | | Koc | VOC? | Aqueous Sol (mg/L) | Aqueous Sol Reference[1] | TF Vol from Surface Soil | TF Vol from SubSurface Soil | Organic Liquid | Boiling Point (degrees C) | Degradation Coefficient (K)(yr$^{-1}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AZINPHOS-METHYL (GUTHION) | 86-50-0 | [0.003] 0.0015 | [D] O | | | 0.01 | D | | | 407.4 | | 31.5 | 1, 2 | | | | 421 | |
| BAYGON (PROPOXUR) | 114-26-1 | 0.004 | I | | | | | | | 31 | | 2000 | 2,4,5 | | | | decomp. | 4.50 |
| BENOMYL | 17804-35-2 | 0.05 | I | 0.0024 | O | | | | | 1,900 | | 5 | | | | | 520 | |
| BENTAZON | 25057-89-0 | 0.03 | I | | | | | | | 13 | | 500 | 2 | | | | 415 | |
| BENZENE | 71-43-2 | 0.004 | I | 0.055 | I | 0.03 | I | 0.0000078 | I | 58 | X | 1780.5 | 1,2,3,4 | [13100] 13053 | 15000 | X | 81 | 0.35 |
| BENZIDINE | 92-87-5 | 0.003 | I | 230 | I | | | 0.067 | I | 530,000 | | 520 | 1,2,4 | | | | 400 | 15.81 |
| BENZO[A]ANTHRACENE | 56-55-3 | | | 0.7 | X | | | 0.00011 | C | 350000 | | 0.011 | 1,5,6 | | | | 438 | 0.19 |
| BENZO[A]PYRENE | 50-32-8 | 0.0003 | I | [7.3] 1 | I | 0.000002 | I | [0.0011] 0.0006 | [C]I | 910000 | | 0.0038 | 1,5,6 | | | | 495 | 0.24 |
| BENZO[B]FLUORANTHENE | 205-99-2 | | | 1.2 | C | | | 0.00011 | C | 550000 | | 0.0012 | 5,6,7 | | | | 357 | 0.21 |
| BENZO[GHI]PERYLENE | 191-24-2 | 0.06 | S | | | | | | | 2800000 | | 0.00026 | 1,5,6 | | | | 500 | 0.19 |
| BENZO[K]FLUORANTHENE | 207-08-9 | | | 1.2 | C | | | 0.00011 | C | 4400000 | | 0.00055 | 5,6,7 | | | | 480 | 0.06 |
| BENZOIC ACID | 65-85-0 | 4 | I | | | | | | | 32 | X | 2700 | 2,3,4,5 | 12985 | 14913 | | 249 | |
| BENZOTRICHLORIDE | 98-07-7 | | | 13 | I | | | | | 920 | X | 53 | 1,5,13 | 13494 | 15606 | X | 221 | 121413.60 |
| BENZYL ALCOHOL | 100-51-6 | 0.1 | P | | | | | | | 100 | | 40000 | 1,2,3 | | | X | 205 | |
| BENZYL CHLORIDE | 100-44-7 | 0.002 | P | 0.17 | I | 0.001 | P | 0.000049 | C | 190 | X | 493 | 1 | [13000] 12940 | [15000] 14846 | X | 179 | 20.90 |
| BETA PROPIOLACTONE | 57-57-8 | | | 14 | C | | | 0.004 | C | 4 | X | 370000 | 2 | [13100] 13008 | [15000] 14937 | X | 162 | 0.01 |
| BHC, ALPHA | 319-84-6 | 0.008 | D | 6.3 | I | | | 0.0018 | I | 1800 | | 1.7 | 4,5,6,7 | | | | 288 | 0.94 |
| BHC, BETA- | 319-85-7 | | | 1.8 | I | | | 0.00053 | I | 2300 | | 0.1 | 6 | | | | 304 | 1.02 |
| BHC, GAMMA (LINDANE) | 58-89-9 | 0.0003 | I | 1.1 | C | | | 0.00031 | C | 1400 | | 7.3 | 4,5,6 | | | | 323 | 1.05 |
| BIPHENYL, 1,1- | 92-52-4 | 0.05 | I | 0.008 | [X] I | 0.0004 | X | | | 1,700 | X | 7.2 | 1 | 14027 | 16325 | | 255 | 18.07 |
| BIS(2-CHLORO ETHOXY)METHANE | 111-91-1 | 0.003 | P | | | | | | | 61 | | 100500 | 4,6,7,9,10,11 | | | X | 218 | |
| BIS(2-CHLOROETHYL)ETHER | 111-44-4 | | | 1.1 | I | | | 0.00033 | I | 76 | X | 10200 | 1,4,5 | [13000] 12942 | [14900] 14849 | X | 179 | 0.69 |
| BIS(2-CHLORO-ISOPROPYL)ETHER | 108-60-1 | 0.04 | I | 0.07 | H | | | 0.00001 | H | 62 | X | 1700 | 5 | [13000] 12947 | [14900] 14856 | X | 189 | 0.69 |
| BIS(CHLOROMETHYL)ETHER | 542-88-1 | | | 220 | I | | | 0.062 | I | 16 | X | 22000 | 6 | [13100] 12992 | [15100] 14922 | X | 105 | 57270.57 |
| BIS[2-ETHYLHEXYL] PHTHALATE | 117-81-7 | 0.02 | I | 0.014 | I | | | 0.0000024 | C | 87000 | | 0.285 | 4,5,6 | | | X | 384 | 0.65 |
| BISPHENOL A | 80-05-7 | 0.05 | I | | | | | | | 1,500 | | 120 | 4 | | | | 220 | 0.69 |

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**Appendix A**
**Table 5 – Physical and Toxicological Properties**
**A. Organic Regulated Substances**

| Regulated Substance | CAS | RfDo (mg/kg-d) | | CSFo (mg/kg-d)$^{-1}$ | | RfCl (mg/m$^3$) | | IUR (µg/m$^3$)$^{-1}$ | | Koc | VOC? | Aqueous Sol (mg/L) | Aqueous Sol Reference[1] | TF Vol from Surface Soil | TF Vol from SubSurface Soil | Organic Liquid | Boiling Point (degrees C) | Degradation Coefficient (K)(yr$^{-1}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BROMACIL | 314-40-9 | 0.1 | M | | | | | | | 58 | | 815 | 2 | | | | 421 | |
| BROMOBENZENE | 108-86-1 | 0.008 | I | | | 0.06 | I | | | 268 | X | 445 | 1,2 | 12954 | 14866 | X | 156.1 | |
| BROMOCHLOROMETHANE | 74-97-5 | 0.01 | M | | | 0.04 | X | | | 27 | X | 16700 | 4 | [13100] 13007 | [15000] 14942 | X | 68 | |
| BROMODICHLOROMETHANE | 75-27-4 | 0.02 | I | 0.062 | I | | | 0.000037 | C | 93 | X | 4500 | 6 | [13100] 12984 | [15000] 14910 | X | 87 | |
| BROMOMETHANE | 74-83-9 | 0.0014 | I | | | 0.005 | I | | | 170 | X | 17500 | 2 | [13100] 13039 | [15000] 14981 | X | 4 | 6.66 |
| BROMOXYNIL | 1689-84-5 | [0.02] 0.015 | [I] O | 0.103 | O | | | | | 300 | | 130 | 2 | | | | 329 | |
| BROMOXYNIL OCTANOATE | 1689-99-2 | [0.02] 0.015 | [I] O | 0.103 | O | | | | | 18,000 | | 0.08 | 12 | | | | 414 | 5.75 |
| BUTADIENE, 1,3- | 106-99-0 | | | [3.4] 0.6 | C | 0.002 | I | 0.00003 | I | 120 | X | 735 | 1 | [13200] 13115 | [15000] 15041 | X | -4.5 | 4.50 |
| BUTYL ALCOHOL, N- | 71-36-3 | 0.1 | I | | | | | | | 3.2 | X | 74000 | 1 | [13000] 12998 | [14900] 14930 | X | 118 | 4.68 |
| BUTYLATE | 2008-41-5 | 0.05 | I | | | | | | | 540 | X | 45 | 2 | [13200] 13430 | [15200] 15519 | X | 138 | |
| BUTYLBENZENE, N- | 104-51-8 | 0.05 | P | | | | | | | 2,500 | X | 15 | 1,6,7 | [13100] 12943 | [15100] 14851 | X | 183 | |
| BUTYLBENZENE, SEC- | 135-98-8 | 0.1 | X | | | | | | | 890 | X | 17 | 1,6,7 | [13100] 12983 | [15000] 14910 | X | 174 | |
| BUTYLBENZENE, TERT- | 98-06-6 | 0.1 | X | | | | | | | 680 | X | 30 | 1,6,7 | [13100] 12979 | [15000] 14904 | X | 169 | |
| BUTYLBENZYL PHTHALATE | 85-68-7 | 0.2 | I | 0.0019 | P | | | | | 34000 | | 2.69 | 4,5,6 | | | X | 370 | 1.39 |
| CAPTAN | 133-06-2 | 0.13 | I | 0.0023 | C | | | 0.00000066 | C | 200 | | 0.5 | 4 | | | | 259 | 589.39 |
| CARBARYL | 63-25-2 | 0.1 | I | | | | | | | 190 | | 120 | 2,4,5 | | | | 315 | 4.22 |
| CARBAZOLE | 86-74-8 | | | 0.02 | H | | | | | 2,500 | | 1.2 | 1,5,6 | | | | 355 | |
| CARBOFURAN | 1563-66-2 | 0.005 | I | | | | | | | 43 | | 700 | 2 | | | | 311 | |
| CARBON DISULFIDE | 75-15-0 | 0.1 | I | | | 0.7 | I | | | 300 | X | 2100 | 1,2,3 | [13100] 13022 | [15100] 14961 | X | 46 | |
| CARBON TETRACHLORIDE | 56-23-5 | 0.004 | I | 0.07 | I | 0.1 | I | 0.000006 | I | 160 | X | 795 | 1,2,3 | [13100] 13117 | [15000] 15083 | X | 77 | 0.07 |
| CARBOXIN | 5234-68-4 | 0.1 | I | | | | | | | 260 | | 170 | 5,6,8 | | | | 407 | |
| CHLORAMBEN | 133-90-4 | 0.015 | I | | | | | | | 20 | | 700 | 2 | | | | 210 | |
| CHLORDANE | 57-74-9 | 0.0005 | I | 0.35 | I | 0.0007 | I | 0.0001 | I | 98000 | | 0.056 | 4,5,7 | | | | 351 | 0.09 |

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| Regulated Substance | CAS | RfDo (mg/kg-d) | | CSFo (mg/kg-d)$^{-1}$ | | RfCi (mg/m$^3$) | | IUR (µg/m$^3$)$^{-1}$ | | Koc | VOC? | Aqueous Sol (mg/L) | Aqueous Sol Reference[1] | TF Vol from Surface Soil | TF Vol from SubSurface Soil | Organic Liquid | Boiling Point (degrees C) | Degradation Coefficient (K)(yr$^{-1}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHLORO-1,1-DIFLUOROETHANE, 1- | 75-68-3 | | | | | 50 | I | | | 22 | X | 1400 | 4 | [13100] 13117 | [15000] 15041 | X | -9 | |
| CHLORO-1-PROPENE, 3- (ALLYL CHLORIDE) | 107-05-1 | | | 0.021 | C | 0.001 | I | 0.000006 | C | 48 | X | 3300 | 1,3,5,7,10 | [13100] 13142 | [15000] 15116 | X | 45 | 18.07 |
| CHLOROACETALDEHYDE | 107-20-0 | | | [0.3] 0.27 | X | | | | | 3.2 | X | 1000000 | 9 | [13000] 13004 | [14900] 14938 | X | 85 | |
| CHLOROACETOPHENONE, 2- | 532-27-4 | | | | | 0.00003 | I | | | 76 | | 1100 | 3 | | | | 247 | 4.50 |
| CHLOROANILINE, P- | 106-47-8 | 0.004 | I | 0.2 | P | | | | | 460 | X | 3900 | 1 | 13139 | 15127 | | 232 | |
| CHLOROBENZENE | 108-90-7 | 0.02 | I | | | 0.05 | P | | | 200 | X | 490 | 3 | [13100] 12992 | [15000] 14922 | X | 132 | 0.84 |
| CHLOROBENZILATE | 510-15-6 | 0.02 | I | 0.11 | C | | | 0.000031 | C | 2600 | | 13 | 4 | | | | 415 | 3.60 |
| CHLOROBUTANE, 1- | 109-69-3 | 0.04 | P | | | | | | | 580 | X | 680 | 1,2,3,4 | [13200] 13007 | [15000] 14942 | X | 79 | |
| CHLORODIBROMOMETHANE | 124-48-1 | 0.02 | I | 0.084 | I | | | [0.000027] | [C] | 83 | X | 4200 | 4,6,7,9 | [13100] 12973 | [15100] 14895 | X | 116 | 1.39 |
| CHLORODIFLUOROMETHANE | 75-45-6 | | | | | 50 | I | | | 59 | X | 2899 | 4 | [13200] 13141 | [15000] 15113 | X | -41 | |
| CHLOROETHANE | 75-00-3 | [0.4] | [N] | [0.0029] | [N] | 10 | I | | | 42 | X | 5700 | 1 | [13100] 13101 | [15000] 15038 | X | 12 | 4.50 |
| CHLOROFORM | 67-66-3 | 0.01 | I | [0.019] 0.031 | C | [0.098] 0.3 | [D] C | 0.000023 | I | 56 | X | 8000 | 1,2,3 | [13100] 13044 | [15000] 14988 | X | 61 | 0.01 |
| CHLORONAPHTHALENE, 2- | 91-58-7 | 0.08 | I | | | | | | | 8500 | X | 11.7 | 1 | 19021 | 23532 | | 256 | |
| CHLORONITROBENZENE, P- | 100-00-5 | [0.001] 0.0007 | P | [0.0063] 0.06 | P | [0.0006] 0.002 | P | | | 480 | X | 220 | 1 | 13190 | 15196 | | 242 | |
| CHLOROPHENOL, 2- | 95-57-8 | 0.005 | I | | | | | | | 400 | X | 24000 | 1,3,4 | [12900] 13053 | [14900] 15009 | X | 175 | |
| CHLOROPRENE | 126-99-8 | 0.02 | H | | | 0.02 | I | 0.0003 | I | 50 | X | 1736 | 9 | [13100] 13116 | [15000] 15075 | X | 59 | 0.69 |
| CHLOROPROPANE, 2- | 75-29-6 | | | | | [0.1] 0.1001 | H | | | 260 | X | 3100 | 1,3,5 | [13200] 13055 | [15000] 15002 | X | 47 | |
| CHLOROTHALONIL | 1897-45-6 | 0.015 | I | [0.0031] 0.017 | C | | | [0.00000089] | [C] | 980 | | 0.6 | 2 | | | | 350 | |
| CHLOROTOLUENE, O- | 95-49-8 | 0.02 | I | | | | | | | 760 | X | 422 | 1,4,5 | [13100] 12941 | [15000] 14848 | X | 159 | |
| CHLOROTOLUENE, P- | 106-43-4 | 0.02 | X | | | | | | | 375 | X | 106 | 12 | [13000] 12961 | [14900] 14877 | X | 162 | |
| CHLORPYRIFOS | 2921-88-2 | 0.001 | D | | | | | | | 4600 | | 1.12 | 2,4,6,7 | | | | 377 | |

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| Regulated Substance | CAS | RfDo (mg/kg-d) | | CSFo $(mg/kg\text{-}d)^{-1}$ | | RfCl $(mg/m^3)$ | | IUR $(\mu g/m^3)^{-1}$ | | Koc | VOC? | Aqueous Sol (mg/L) | Aqueous Sol Reference[1] | TF Vol from Surface Soil | TF Vol from SubSurface Soil | Organic Liquid | Boiling Point (degrees C) | Degradation Coefficient $(K)(yr^{-1})$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHLORSULFURON | 64902-72-3 | [0.05] 0.02 | [I] O | | | | | | | 11 | | 192 | 2,5,6,8,9 | | | | 531 | |
| CHLORTHAL-DIMETHYL (DACTHAL) (DCPA) | 1861-32-1 | 0.01 | I | | | | | | | 6,500 | | 0.5 | 2,5,7 | | | | 360 | 1.37 |
| CHRYSENE | 218-01-9 | | | 0.12 | C | | | 0.000011 | C | 490000 | | 0.0019 | 1 | | | | 448 | 0.13 |
| CRESOL(S) | 1319-77-3 | 0.1 | D | | | 0.06 | C | | | 25 | X | 20000 | 2 | [13000] 12976 | [14900] 14899 | X | 139 | 5.16 |
| CRESOL, DINITRO-O-, 4,6- | 534-52-1 | [0.0001] 0.00008 | [P] X | | | | | | | 257 | X | 150 | 4 | 13025 | 14970 | | 312 | 6.02 |
| CRESOL, O- (METHYLPHENOL, 2-) | 95-48-7 | 0.05 | I | | | | | | | 22 | X | 2500 | 3,5,6 | [13000] 12974 | [14900] 14896 | | 191 | 18.07 |
| CRESOL, M (METHYLPHENOL, 3-) | 108-39-4 | 0.05 | I | | | | | | | 35 | | 2500 | 2 | | | X | 202 | 5.16 |
| CRESOL, P (METHYLPHENOL, 4-) | 106-44-5 | 0.005 | H | | | | | | | 49 | | 22000 | 6 | | | | 202 | 9.03 |
| CRESOL, P-CHLORO-M- | 59-50-7 | 0.1 | X | | | | | | | 780 | | 3846 | 2 | | | | 235 | |
| CROTONALDEHYDE | 4170-30-3 | 0.001 | S | 1.9 | S | | | | | 5.6 | X | 180000 | 3 | [13000] 12998 | [14900] 14931 | X | 104 | 18.07 |
| CROTONALDEHYDE, TRANS- | 123-73-9 | 0.001 | P | 1.9 | H | | | | | 6.1 | X | 156000 | 1 | [13100] 13006 | [15100] 14940 | X | 104 | 18.07 |
| CUMENE (ISOPROPYL BENZENE) | 98-82-8 | 0.1 | I | | | 0.4 | I | | | 2800 | X | 50 | 1,5,6 | [13100] 12940 | [15100] 14846 | X | 152 | 15.81 |
| CYANAZINE | 21725-46-2 | 0.002 | [M] H | 0.84 | H | | | | | 199 | | 171 | 2,5 | | | | 369 | |
| CYCLOHEXANE | 110-82-7 | | | | | 6 | I | | | 479 | X | 55 | 1,2,4,5,6 | [13100] 13140 | [15100] 15112 | X | 81 | |
| CYCLOHEXANONE | 108-94-1 | 5 | I | | | 0.7 | P | | | 66 | X | 36500 | 1,2,4,5 | [13000] 12949 | [14900] 14858 | X | 157 | |
| CYFLUTHRIN | 68359-37-5 | 0.025 | I | | | | | | | 130,000 | | 0.001 | 2 | | | | 448 | |
| CYROMAZINE | 66215-27-8 | [0.0075] 0.5 | [I] O | | | | | | | 1,200 | | 11000 | 12 | | | | 222 | |
| DDD, 4,4'- | 72-54-8 | 0.003 | X | 0.24 | I | | | 0.000069 | C | 44000 | | 0.16 | 5,6,7 | | | | 350 | 0.02 |
| DDE, 4,4'- | 72-55-9 | 0.0003 | X | 0.34 | I | | | 0.000097 | C | 87000 | | 0.04 | 5 | | | | 348 | 0.02 |
| DDT, 4,4'- | 50-29-3 | 0.0005 | I | 0.34 | I | | | 0.000097 | I | 240000 | | 0.0055 | 5,6,7 | | | | 260 | 0.02 |
| DI(2-ETHYLHEXYL)ADIPATE | 103-23-1 | 0.6 | I | 0.0012 | I | | | | | 47,000,000 | | 200 | 5 | | | X | 214 | 4.50 |
| DIALLATE | 2303-16-4 | | | 0.061 | H | | | | | 190 | | 40 | 2,4,6,8 | | | X | 328 | 1.39 |
| DIAMINOTOLUENE, 2,4- | 95-80-7 | | | 4 | C | | | 0.0011 | C | 36 | | 7470 | 4 | | | | 292 | 0.69 |
| DIAZINON | 333-41-5 | 0.0007 | D | | | | | | | 500 | | 50 | 2,4,6,8 | | | X | 306 | |
| DIBENZO[A,H]ANTHRACENE | 53-70-3 | | | 4.1 | C | | | 0.0012 | C | 1800000 | | 0.0006 | 1,5,6 | | | | 524 | 0.13 |

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**A. Organic Regulated Substances**

| Regulated Substance | CAS | RfDo (mg/kg-d) | | CSFo (mg/kg-d)$^{-1}$ | | RfCi (mg/m$^3$) | | IUR (µg/m$^3$)$^{-1}$ | | Koc | VOC? | Aqueous Sol (mg/L) | Aqueous Sol Reference[1] | TF Vol from Surface Soil | TF Vol from SubSurface Soil | Organic Liquid | Boiling Point (degrees C) | Degradation Coefficient (K)(yr$^{-1}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIBENZOFURAN | 132-64-9 | 0.001 | X | | | | | | | 10233 | X | 4.48 | 1,6,7,9 | 23885 | 31445 | | 287 | 7.23 |
| DIBROMO-3-CHLOROPROPANE, 1,2- | 96-12-8 | 0.0002 | P | 0.8 | P | 0.0002 | I | 0.006 | P | 140 | X | 1000 | 4 | [13000] 12946 | [15000] 14856 | X | 196 | 0.69 |
| DIBROMOBENZENE, 1,4- | 106-37-6 | 0.01 | I | | | | | | | 1,600 | | 20 | 1 | | | | 220 | |
| DIBROMOETHANE, 1,2- (ETHYLENE DIBROMIDE) | 106-93-4 | 0.009 | I | 2 | I | 0.009 | I | 0.0006 | I | 54 | X | 4150 | 1,2,3,5 | [13100] 12972 | [15100] 14893 | X | 131 | 2.11 |
| DIBROMOMETHANE | 74-95-3 | 0.01 | H | | | 0.004 | X | | | 110 | X | 11400 | 1 | [13100] 12948 | [15100] 14858 | X | 96 | 4.50 |
| DIBUTYL PHTHALATE, N- | 84-74-2 | 0.1 | I | | | | | | | 1600 | | 400 | 1,2,3 | | | X | 340 | 11.00 |
| DICAMBA | 1918-00-9 | 0.03 | I | | | | | | | 0.27 | | 5600 | 4,5,6,8,10 | | | | 329 | |
| DICHLOROACETIC ACID | 76-43-6 | 0.004 | I | 0.05 | I | | | | | 8.1 | X | 1000000 | 1 | [12900] 12994 | [14900] 14924 | X | 194 | |
| DICHLORO-2-BUTENE, 1,4- | 764-41-0 | | | | | | | 0.0042 | P | 180 | X | 850 | 9 | [13100] 12943 | [15000] 14851 | X | 156 | |
| DICHLORO-2-BUTENE, TRANS-1,4- | 110-57-6 | | | | | | | 0.0042 | [S]P | 215 | X | 850 | 9 | [12900] 12940 | [14800] 14847 | X | 155 | |
| DICHLOROBENZENE, 1,2- | 95-50-1 | 0.09 | I | | | 0.2 | H | | | 350 | X | 147 | 1,4,5,6,7 | [13100] 12946 | [15100] 14855 | X | 180 | 0.69 |
| DICHLOROBENZENE, 1,3- | 541-73-1 | 0.09 | M | | | | | | | 360 | X | 106 | 1 | [13100] 12942 | [15100] 14849 | X | 173 | 0.69 |
| DICHLOROBENZENE, P- | 106-46-7 | 0.07 | D | 0.0054 | C | 0.8 | I | 0.000011 | C | 510 | X | 82.9 | 1 | [12900] 12943 | [14900] 14850 | | 174 | 0.69 |
| DICHLOROBENZIDINE, 3,3'- | 91-94-1 | | | 0.45 | I | | | 0.00034 | C | 22000 | | 3.11 | 4,5,6 | | | | 368 | 0.69 |
| DICHLORODIFLUOROMETHANE (FREON 12) | 75-71-8 | 0.2 | I | | | 0.1 | X | | | 360 | X | 280 | 1 | [13200] 13115 | [15000] 15041 | X | -30 | 0.69 |
| DICHLOROETHANE, 1,1- | 75-34-3 | 0.2 | P | 0.0057 | C | 0.5 | H | 0.0000016 | C | 52 | X | 5000 | 2 | [13100] 13051 | [15000] 14998 | X | 57 | 0.16 |
| DICHLOROETHANE, 1,2- | 107-06-2 | 0.006 | X | 0.091 | I | 0.007 | P | 0.000026 | I | 38 | X | 8412 | 1,2,3,4 | [13100] 13010 | [15000] 14945 | X | 83 | 0.07 |
| DICHLOROETHYLENE, 1,1- | 75-35-4 | 0.05 | I | | | 0.2 | I | | | 65 | X | 2500 | 1,4,5 | [13100] 13145 | [15000] 15119 | X | 32 | 0.19 |
| DICHLOROETHYLENE, CIS-1,2- | 156-59-2 | 0.002 | I | | | | | | | 49 | X | 3500 | 1 | [13100] 13037 | [15000] 14979 | X | 60 | 0.01 |
| DICHLOROETHYLENE, TRANS-1,2- | 156-60-5 | 0.02 | I | | | [0.06] | [P] | | | 47 | X | 6300 | 1 | [13100] 13053 | 15000 | X | 48 | 0.01 |
| DICHLOROMETHANE (METHYLENE CHLORIDE) | 75-09-2 | 0.006 | I | 0.002 | I | 0.6 | I | 0.00000001 | I | 16 | X | 20000 | 1,2,3 | [13100] 13071 | [15000] 15023 | X | 40 | 4.50 |
| DICHLOROPHENOL, 2,4- | 120-83-2 | 0.003 | I | | | | | | | 160 | | 4500 | 1 | | | | 210 | 5.88 |

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**A. Organic Regulated Substances**

| Regulated Substance | CAS | RfDo (mg/kg-d) | | CSFo (mg/kg-d)$^{-1}$ | | RfCl (mg/m$^3$) | | IUR (µg/m$^3$)$^{-1}$ | | Koc | VOC? | Aqueous Sol (mg/L) | Aqueous Sol Reference[1] | TF Vol from Surface Soil | TF Vol from SubSurface Soil | Organic Liquid | Boiling Point (degrees C) | Degradation Coefficient (K)(yr$^{-1}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DICHLOROPHENOXYACETIC ACID, 2,4-(2,4-D) | 94-75-7 | 0.01 | I | | | | | | | 59 | | 677 | 4,5,6,7,10 | | | | 215 | 1.39 |
| DICHLOROPROPANE, 1,2- | 78-87-5 | [0.09] 0.04 | [D] P | [0.036] 0.037 | [C] P | 0.004 | I | [0.00001] 0.0037 | [C]P | 47 | X | 2700 | 1,3,4 | [13100] 13016 | [15000] 14954 | X | 96 | 0.10 |
| DICHLOROPROPENE, 1,3- | 542-75-6 | 0.03 | I | 0.1 | I | 0.02 | I | 0.000004 | I | 27 | X | 2700 | 6 | [13100] 13038 | [15000] 14981 | X | 108 | 22.38 |
| DICHLOROPROPIONIC ACID, 2,2-(DALAPON) | 75-99-0 | 0.03 | I | | | | | | | 62 | X | 500000 | 5 | [13000] 12949 | [14900] 14860 | X | 190 | 2.11 |
| DICHLORVOS | 62-73-7 | 0.0005 | I | 0.29 | I | 0.0005 | I | 0.000083 | C | 50 | | 10000 | 2,4,5 | | | X | 234 | |
| DICYCLOPENTADIENE | 77-73-6 | 0.008 | P | | | 0.0003 | X | | | 810 | X | 40 | 5 | [13000] 12957 | [14900] 14870 | | 167 | |
| DIELDRIN | 60-57-1 | 0.00005 | I | 16 | I | | | 0.0046 | I | 11000 | | 0.17 | 4,5,6 | | | | 385 | 0.12 |
| DIETHANOLAMINE | 111-42-2 | 0.002 | P | | | 0.0002 | P | | | 4 | | 1000000 | 2,3,9 | | | X | 269 | |
| DIETHYL PHTHALATE | 84-66-2 | 0.8 | I | | | | | | | 81 | | 1080 | 4,5,6 | | | X | 298 | 2.25 |
| DIFLUBENZURON | 35367-38-5 | 0.02 | I | | | | | | | 1,000 | | 0.2 | 2 | | | | 201 | |
| DIISOPROPYL METHYLPHOSPHONATE | 1445-75-6 | 0.08 | I | | | | | | | 10 | X | 160000 | 9 | [13000] 12978 | [14900] 14903 | X | 190 | |
| DIMETHOATE | 60-51-5 | [0.0002] 0.0022 | [I] O | | | | | | | 110 | | 25000 | 4 | | | | 361 | 2.26 |
| DIMETHOXYBENZIDINE, 3,3- | 119-90-4 | | | 1.6 | P | | | | | 1,300 | | 60 | 9 | | | | 331 | 0.69 |
| DIMETHRIN | 70-38-2 | 0.3 | M | | | | | | | 27,000 | | 0.036 | 13 | | | | 353 | |
| DIMETHYLAMINOAZOBENZENE, P- | 60-11-7 | | | 4.6 | C | | | 0.0013 | C | 1000 | | 13.6 | 7 | | | | 335 | 4.50 |
| DIMETHYLANILINE, N,N- | 121-69-7 | 0.002 | I | 0.027 | P | | | | | 180 | X | 1200 | 5,6,7,9 | [13000] 12944 | [14900] 14852 | X | 192 | 0.69 |
| DIMETHYLBENZIDINE, 3,3- | 119-93-7 | | | 11 | P | | | | | 22,000 | | 1300 | 10 | | | | 300 | 18.07 |
| DIMETHYL METHYLPHOSPHONATE | 756-79-6 | 0.06 | P | 0.0017 | P | | | | | 5 | X | 1000000 | 14 | [13000] 12998 | [14900] 14930 | X | 181 | |
| DIMETHYLPHENOL, 2,4- | 105-67-9 | 0.02 | I | | | | | | | 130 | | 7869 | 1,4,6,7 | | | X | 211 | 18.07 |
| DINITROBENZENE, 1,3- | 99-65-0 | 0.0001 | I | | | | | | | 150 | | 523 | 3,5,6,7 | | | | 291 | 0.69 |
| DINITROPHENOL, 2,4- | 51-28-5 | 0.002 | I | | | | | | | 0.79 | | 5600 | 2,4,5,6,7 | | | | 332 | 0.48 |
| DINITROTOLUENE, 2,4- | 121-14-2 | 0.002 | I | 0.31 | C | | | 0.000089 | C | 51 | | 270 | 4,5,6 | | | | 300 | 0.69 |
| DINITROTOLUENE, 2,6- (2,6-DNT) | 606-20-2 | 0.0003 | X | 1.5 | P | | | | | 74 | | 200 | 6 | | | | 300 | 0.69 |
| DINOSEB | 88-85-7 | 0.001 | I | | | | | | | 120 | | 50 | 5 | | | | 223 | 1.03 |
| DIOXANE, 1,4- | 123-91-1 | 0.03 | I | 0.1 | I | [0.11] 0.03 | [D] I | [0.0000077] 0.000005 | [C]I | 7.8 | X | 1000000 | 5 | [13000] 12996 | [14900] 14928 | X | 101 | 0.69 |
| DIPHENAMID | 957-51-7 | 0.03 | I | | | | | | | 200 | | 260 | 5 | | | | 210 | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIPHENYLAMINE | 122-39-4 | [0.025] 0.1 | [I] O | | | | | | | 190 | | 300 | 3 | | | | 302 | 4.50 |
| DIPHENYLHYDRAZINE, 1,2- | 122-66-7 | | | 0.8 | I | | | 0.00022 | I | 660 | X | 0.252 | 6 | 13375 | 15446 | | 309 | 0.69 |
| DIQUAT | 85-00-7 | 0.0022 | I | | | | | | | 2.6 | | 700000 | 5 | | | | 355 | |
| DISULFOTON | 298-04-4 | 0.00004 | I | | | | | | | 1000 | | 25 | 4,5,6 | | | X | 332 | 6.02 |
| DITHIANE, 1,4- | 505-29-3 | 0.01 | I | | | | | | | 22.7 | X | 3000 | 15 | [13000] 12976 | [14900] 14899 | | 199 | |
| DIURON | 330-54-1 | 0.002 | I | | | | | | | 300 | | 42 | 2,4,5 | | | | 354 | |
| ENDOSULFAN | 115-29-7 | 0.006 | I | | | | | | | 2,000 | | 0.48 | 4 | | | | 401 | 2.78 |
| ENDOSULFAN I (ALPHA) | 959-98-8 | 0.006 | S | | | | | | | 2000 | | 0.5 | 6 | | | | 401 | |
| ENDOSULFAN II (BETA) | 33213-65-9 | 0.006 | S | | | | | | | 2300 | | 0.45 | 6 | | | | 390 | |
| ENDOSULFAN SULFATE | 1031-07-8 | 0.006 | S | | | | | | | 2300 | | 0.117 | 7,9 | | | | 409 | |
| ENDOTHALL | 145-73-3 | 0.02 | I | | | | | | | 120 | | 100000 | 2 | | | | 350 | |
| ENDRIN | 72-20-8 | 0.0003 | I | | | | | | | 11000 | | 0.23 | 4,6,7,9 | | | | 245 | |
| EPICHLOROHYDRIN | 106-89-8 | 0.006 | P | 0.0099 | I | 0.001 | I | 0.0000012 | I | 35 | X | 65800 | 1,3,4 | [13000] 12972 | [14900] 14893 | X | 116 | 4.50 |
| ETHEPHON | 16672-87-0 | 0.005 | I | | | | | | | 2 | | 1240000 | 12 | | | | 201 | |
| ETHION | 563-12-2 | 0.0005 | I | | | | | | | 8700 | | 0.85 | 4,6,9,10 | | | X | 415 | |
| ETHOXYETHANOL, 2- (EGEE) | 110-80-5 | 0.09 | P | | | 0.2 | I | | | 12 | X | 1000000 | 2 | [13200] 13100 | [15000] 15040 | X | 136 | 4.50 |
| ETHYL ACETATE | 141-78-6 | 0.9 | I | | | 0.07 | P | | | 59 | X | 80800 | 1,2,3,4,5,6 | [13100] 12963 | [15000] 14881 | X | 77 | 18.07 |
| ETHYL ACRYLATE | 140-88-5 | 0.005 | P | 0.048 | H | 0.008 | P | | | 110 | X | 15000 | 1,2,6 | [13100] 12951 | [15100] 14863 | X | 100 | 18.07 |
| ETHYL BENZENE | 100-41-4 | 0.1 | I | 0.011 | C | 1 | I | 0.0000025 | C | 220 | X | 161 | 1,3,4 | [13100] 13004 | 15000 | X | 136 | 1.11 |
| ETHYL DIPROPYLTHIOCARBAMATE, S- (EPTC) | 759-94-4 | [0.025] 0.05 | [I]O | | | | | | | 240 | X | 365 | 2 | [12900] 13056 | [14900] 15014 | X | 127 | |
| ETHYL ETHER | 60-29-7 | 0.2 | I | | | | | | | 68 | X | 60400 | 1 | [13100] 12982 | [15100] 14908 | X | 35 | |
| ETHYL METHACRYLATE | 97-63-2 | 0.09 | H | | | 0.3 | P | | | 22 | X | 4635.5 | 9,10 | [13100] 12991 | [15000] 14921 | X | 117 | |
| ETHYLENE CHLORHYDRIN | 107-07-3 | 0.02 | P | | | | | | | 1 | X | 1000000 | 9 | [13000] 13006 | [14900] 14941 | X | 128 | |
| ETHYLENE GLYCOL | 107-21-1 | 2 | I | | | 0.4 | C | | | 4.4 | X | 1000000 | 2 | [13100] 13004 | [15100] 14938 | X | 198 | 10.54 |
| ETHYLENE THIOUREA (ETU) | 96-45-7 | 0.00008 | I | 0.045 | C | | | 0.000013 | C | 0.23 | | 20000 | 2 | | | | 347 | 4.50 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ETHYL P-NITROPHENYL PHENYLPHOSPHORO THIOATE | 2104-64-5 | 0.00001 | I | | | | | | | 1,200 | | 3.1 | 4 | | | | 215 | |
| FENAMIPHOS | 22224-92-6 | 0.00025 | I | | | | | | | 300 | | 329 | 2 | | | | 390 | |
| FENVALERATE (PYDRIN) | 51630-58-1 | 0.025 | I | | | | | | | 4,400 | | 0.085 | 5 | | | X | 300 | |
| FLUOMETURON | 2164-17-2 | 0.013 | I | | | | | | | 68 | | 97.5 | 2,5,6,8 | | | | 318 | |
| FLUORANTHENE | 206-44-0 | 0.04 | I | | | | | | | 49000 | | 0.26 | 1,5,6 | | | | 375 | 0.29 |
| FLUORENE | 86-73-7 | 0.04 | I | | | | | | | 7900 | X | 1.9 | 1 | 20155 | 25294 | | 298 | 2.11 |
| FLUOROTRICHLOROMETHANE (FREON 11) | 75-69-4 | 0.3 | I | | | 0.7 | H | | | 130 | X | 1090 | 1,4,5,6 | [13100] 13107 | [15000] 15060 | X | 24 | 0.35 |
| FONOFOS | 944-22-9 | 0.002 | I | | | | | | | 1100 | | 13 | 5,6,8 | | | X | 324 | |
| FORMALDEHYDE | 50-00-0 | 0.2 | I | 0.021 | C | [0.0098] 0.009 | [D] C | 0.000013 | I | 3.6 | X | 55000 | 1 | [13100] 13046 | [15100] 14990 | X | -21 | 18.07 |
| FORMIC ACID | 64-18-6 | 0.9 | P | | | 0.0003 | X | | | 0.54 | X | 1000000 | 2 | [13000] 12940 | [14900] 14846 | X | 101 | 18.07 |
| FOSETYL-AL | 39148-24-8 | [3] 2.5 | [I] O | | | | | | | 310 | | 120000 | 2 | | | | 464 | |
| FURAN | 110-00-9 | 0.001 | I | | | | | | | 130 | X | 10000 | 1 | [13100] 13019 | [15000] 14956 | X | 31 | 2.25 |
| FURFURAL | 98-01-1 | 0.003 | I | 0.0349 | O | 0.05 | H | | | 6.3 | X | 91000 | 1,2,3 | [13000] 12998 | [14900] 14930 | X | 162 | |
| GLYPHOSATE | 1071-83-6 | 0.1 | I | | | | | | | 3500 | | 12000 | 1,5,6 | | | | 417 | |
| HEPTACHLOR | 76-44-8 | 0.0005 | I | 4.5 | I | | | 0.0013 | I | 6800 | | 0.18 | 4,6,7 | | | | 310 | 46.84 |
| HEPTACHLOR EPOXIDE | 1024-57-3 | 0.000013 | I | 9.1 | I | | | 0.0026 | I | 21000 | | 0.311 | 4,6,7,9 | | | | 341 | 0.23 |
| HEXACHLOROBENZENE | 118-74-1 | 0.0008 | I | 1.6 | I | | | 0.00046 | I | 3800 | | 0.006 | 1,4,5 | | | | 319 | 0.06 |
| HEXACHLOROBUTADIENE | 87-68-3 | 0.001 | P | 0.078 | I | | | 0.000022 | I | 4700 | | 2.89 | 4,5,6,7 | | | X | 215 | 0.69 |
| HEXACHLOROCYCLOPENTADIENE | 77-47-4 | 0.006 | I | | | 0.0002 | I | | | 7200 | | 1.8 | 5,6,7 | | | X | 239 | 4.50 |
| HEXACHLOROETHANE | 67-72-1 | 0.0007 | I | 0.04 | I | 0.03 | I | [0.00001] 0.000011 | C | 2200 | X | 50 | 1 | [13000] 14825 | [15000] 17421 | | 187 | 0.69 |
| HEXANE | 110-54-3 | 0.06 | H | | | 0.7 | I | | | 3600 | X | 9.5 | 1,5,6 | [13100] 13105 | [15000] 15056 | X | 69 | |
| HEXAZINONE | 51235-04-2 | 0.033 | I | | | | | | | 41 | | 330000 | 1,2 | | | | 408 | |
| HEXYTHIAZOX (SAVEY) | 78587-05-0 | 0.025 | I | | | | | | | 6,500 | | 0.5 | 2 | | | | 539 | |
| HMX | 2691-41-0 | 0.05 | I | | | | | | | 4 | | 5 | 16 | | | | 436 | |
| HYDRAZINE/HYDRAZINE SULFATE | 302-01-2 | | | 3 | I | 0.00003 | P | 0.0049 | I | 0.0053 | X | 1000000 | 2 | [13000] 13026 | [15000] 14966 | X | 114 | 18.07 |
| HYDROQUINONE | 123-31-9 | 0.04 | P | 0.06 | P | | | | | 10 | | 70000 | 2,3,5 | | | | 285 | 18.07 |

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| Regulated Substance | CAS | RfDo (mg/kg-d) | | CSFo (mg/kg-d)$^{-1}$ | | RfCi (mg/m$^3$) | | IUR (µg/m$^3$)$^{-1}$ | | Koc | VOC? | Aqueous Sol (mg/L) | Aqueous Sol Reference[1] | TF Vol from Surface Soil | TF Vol from SubSurface Soil | Organic Liquid | Boiling Point (degrees C) | Degradation Coefficient (K)(yr$^{-1}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INDENO[1,2,3-CD]PYRENE | 193-39-5 | | | 1.2 | C | | | 0.00011 | C | 31000000 | | 0.062 | 5 | | | | 536 | 0.17 |
| IPRODIONE | 36734-19-7 | 0.04 | I | 0.0439 | O | | | | | 1,100 | | 13 | 2 | | | | 545 | |
| ISOBUTYL ALCOHOL | 78-83-1 | 0.3 | I | | | | | | | 60 | X | 81000 | 1,2,3,4,5 | [13000] 12954 | [14900] 14866 | X | 108 | 17.57 |
| ISOPHORONE | 78-59-1 | 0.2 | I | 0.00095 | I | 2 | C | | | 31 | | 12000 | 2,4,5 | | | X | 215 | 4.5 |
| ISOPROPYL METHYLPHOSPHONATE | 1832-54-8 | 0.1 | I | | | | | | | 1.84 | | 50000 | 13 | | | X | 230 | |
| KEPONE | 143-50-0 | 0.0003 | I | 10 | I | | | 0.0046 | C | 55000 | | 7.6 | 4 | | | | 350 | 0.17 |
| MALATHION | 121-75-5 | 0.02 | I | | | | | | | 1300 | | 143 | 4 | | | X | 351 | 2.46 |
| MALEIC HYDRAZIDE | 123-33-1 | 0.5 | I | | | | | | | 2.8 | | 6000 | 4 | | | | 260 | |
| MANEB | 12427-38-2 | 0.005 | I | 0.0601 | O | | | | | 1 | | 23 | 9,13 | | | | 351 | |
| MERPHOS OXIDE | 78-48-8 | [0.00003] 0.001 | [I] O | | | | | | | 53,000 | | 2.3 | 8,10,12 | | | X | 392 | |
| METHACRYLONITRILE | 126-98-7 | 0.0001 | I | | | 0.03 | P | | | 21 | X | 25700 | 1 | [13100] 12994 | [15100] 14925 | X | 90 | |
| METHAMIDOPHOS | 10265-92-6 | 0.00005 | I | | | | | | | 5 | | 2000000 | 5 | | | | 223 | |
| METHANOL | 67-56-1 | [0.5] 2 | I | | | [4] 20 | [C] I | | | 2.8 | X | 1000000 | 2 | [13100] 13025 | [15100] 14964 | X | 65 | 36.14 |
| METHOMYL | 16752-77-5 | 0.025 | I | | | | | | | 20 | | 58000 | 2 | | | | 228 | |
| METHOXYCHLOR | 72-43-5 | 0.005 | I | | | | | | | 63000 | | 0.045 | 4,5,6 | | | | 346 | 0.69 |
| METHOXYETHANOL, 2- | 109-86-4 | 0.005 | P | | | 0.02 | I | | | 1 | X | 1000000 | 2 | [13100] 13141 | [15000] 15115 | X | 124 | 4.50 |
| METHYL ACETATE | 79-20-9 | 1 | [H] X | | | | | | | 30 | X | 243500 | 4,5,6 | [13100] 12982 | [15100] 14908 | X | 57 | |
| METHYL ACRYLATE | 96-33-3 | 0.03 | H | | | 0.02 | P | | | 55 | X | 52000 | 1,2,5 | [13100] 12971 | [15100] 14892 | X | 70 | 18.07 |
| METHYL CHLORIDE | 74-87-3 | | | 0.013 | H | 0.09 | I | 0.0000018 | H | 6 | X | 6180 | 1,2,3,4 | [13200] 13103 | [15000] 15038 | X | -24 | 4.50 |
| METHYL ETHYL KETONE | 78-93-3 | 0.6 | I | | | 5 | I | | | 32 | X | 275000 | 1,2,3,4,5 | [13100] 12974 | [15100] 14897 | X | 80 | 2.57 |
| METHYL HYDRAZINE | 60-34-4 | 0.001 | P | | | 0.00002 | X | 0.001 | X | 1 | X | 1000000 | 2 | [1300] 13011 | [14900] 14947 | X | 88 | 5.27 |
| METHYL ISOBUTYL KETONE | 108-10-1 | 0.08 | H | | | 3 | I | | | 17 | X | 19550 | 1,2,4,5 | [13100] 12983 | [15100] 14910 | X | 117 | 18.07 |
| METHYL ISOCYANATE | 624-83-9 | | | | | 0.001 | C | | | 10 | X | 100000 | 7 | [13000] 13021 | [15000] 14959 | X | 40 | |
| METHYL N-BUTYL KETONE (2-HEXANONE) | 591-78-6 | 0.005 | I | | | 0.03 | I | | | 54 | X | 17500 | 1 | [13100] 12955 | [15100] 14868 | X | 128 | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| METHYL METHACRYLATE | 80-62-6 | 1.4 | I | | | 0.7 | I | | | 10 | X | 15600 | 1 | [13100] 13001 | [15100] 14934 | X | 100 | 4.50 |
| METHYL METHANESULFONATE | 66-27-3 | | | 0.099 | C | | | 0.000028 | C | 5.2 | | 200000 | 2 | | | X | 203 | |
| METHYL PARATHION | 298-00-0 | 0.00025 | I | | | | | | | 790 | | 25 | 4,5,6 | | | | 348 | 3.61 |
| METHYL STYRENE (MIXED ISOMERS) | 25013-15-4 | 0.006 | H | | | 0.04 | H | | | 2,200 | X | 89 | 9 | [13100] 12945 | [15000] 14853 | X | 163 | |
| METHYL TERT-BUTYL ETHER (MTBE) | 1634-04-4 | | | 0.0018 | C | 3 | I | 0.00000026 | C | 12 | X | 45000 | 1,2,4,6 | [13100] 13014 | [15100] 14950 | X | 55 | 0.69 |
| METHYLCHLOROPHENOXYACETIC ACID (MCPA) | 94-74-6 | 0.0005 | I | | | | | | | 112 | | 1000 | 5,6,8,9 | | | | 287 | 1.39 |
| METHYLENE BIS(2-CHLOROANILINE), 4,4'- | 101-14-4 | 0.002 | P | 0.1 | P | | | 0.00043 | C | 3,000 | | 13.9 | 10 | | | | 379 | |
| METHYLNAPHTHALENE, 2- | 91-57-6 | 0.004 | I | | | 0.003 | S | | | 16000 | X | 25 | 1 | 12955 | 14870 | | 241 | |
| METHYLSTYRENE, ALPHA | 98-83-9 | 0.07 | H | | | | | | | 660 | X | 560 | 9 | [13100] 12942 | [15100] 14850 | X | 165 | |
| METOLACHLOR | 51218-45-2 | 0.15 | I | | | | | | | 182 | X | 530 | 1,5 | [13000] 13035 | [15000] 14985 | X | 100 | |
| METRIBUZIN | 21087-64-9 | 0.025 | I | | | | | | | 95 | | 1200 | 1,5 | | | | 367 | |
| MEVINPHOS | 7786-34-7 | 0.000025 | O | | | | | | | 44 | X | 600000 | 6 | 12947 | 14856 | | | |
| MONOCHLOROACETIC ACID | 79-11-8 | 0.002 | H | | | | | | | 0.24 | X | 858000 | 17 | [13000] 13008 | [14900] 14943 | | 189 | |
| NAPHTHALENE | 91-20-3 | 0.02 | I | 0.12 | C | 0.003 | I | 0.000034 | C | 950 | X | 30 | 3 | 13284 | 15323 | | 218 | 0.98 |
| NAPHTHYLAMINE, 1- | 134-32-7 | | | 1.8 | [S] C | | | [0.00051] | [S] | 3200 | X | 1690 | 2 | 15517 | 18386 | | 301 | 0.69 |
| NAPHTHYLAMINE, 2- | 91-59-8 | | | 1.8 | C | | | [0.00051] | [C] | 87 | | 6.4 | 6 | | | | 306 | 0.69 |
| NAPROPAMIDE | 15299-99-7 | [0.1] 0.12 | [I] O | | | | | | | 880 | | 70 | 2 | | | | 399 | |
| NITROANILINE, O- | 88-74-4 | 0.01 | X | | | 0.00005 | X | | | 27 | X | 1200 | 6 | 12967 | 14886 | | 284 | |
| NITROANILINE, P- | 100-01-6 | 0.004 | P | 0.02 | P | 0.006 | P | | | 15 | | 800 | 2 | | | | 332 | |
| NITROBENZENE | 98-95-3 | 0.002 | I | | | 0.009 | I | 0.00004 | I | 130 | X | 2000 | 2 | 12940 | 14847 | X | 211 | 0.64 |
| NITROGUANIDINE | 556-88-7 | 0.1 | I | | | | | | | 0.13 | | 4400 | 9 | | | | 231 | |
| NITROPHENOL, 2- | 88-75-5 | 0.008 | S | | | | | | | 37 | X | 2100 | 1,2,3,4,5,6 | 12966 | 14884 | | 215 | 9.01 |
| NITROPHENOL, 4- | 100-02-7 | 0.008 | [N] M | | | | | | | 230 | X | 16000 | 2 | 12960 | 14878 | | 279 | 25.81 |
| NITROPROPANE, 2- | 79-46-9 | | | | | 0.02 | I | 0.0027 | H | 20 | X | 16700 | 1,3,4,5 | [13000] 12984 | [14900] 14911 | X | 120 | 0.69 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NITROSODIETHYLAMINE, N- | 55-18-5 | | | 150 | I | | | 0.043 | I | 26 | X | 93000 | 10 | [13000] 12974 | [14900] 14896 | X | 176 | 0.69 |
| NITROSODIMETHYLAMINE, N- | 62-75-9 | 0.000008 | P | 51 | I | 0.00004 | X | 0.014 | I | 8.5 | X | 1000000 | 2 | [13000] 13001 | [14900] 14934 | X | 154 | 0.69 |
| NITROSO-DI-N-BUTYLAMINE, N- | 924-16-3 | | | 5.4 | I | | | 0.0016 | I | 450 | X | 1200 | 9, 10, 11 | 13008 | 14946 | X | 235 | 0.69 |
| NITROSODI-N-PROPYLAMINE, N- | 621-64-7 | | | 7 | I | | | 0.002 | C | 11 | X | 9900 | 6 | 12986 | 14914 | X | 206 | 0.69 |
| NITROSODIPHENYLAMINE, N- | 86-30-6 | | | 0.0049 | I | | | 0.0000026 | C | 580 | X | 35 | 1 | 13148 | 15140 | | 269 | 3.72 |
| NITROSO-N-ETHYLUREA, N- | 759-73-9 | | | 27 | C | | | 0.0077 | C | 2 | | 13000 | 9 | | | | 223 | 1734.48 |
| OCTYL PHTHALATE, DI-N- | 117-84-0 | 0.01 | P | | | | | | | 980000000 | | 3 | 5 | | | X | 234 | 0.69 |
| OXAMYL (VYDATE) | 23135-22-0 | 0.025 | I | | | | | | | 7.1 | | 280000 | 2 | | | | 334 | |
| PARAQUAT | 1910-42-5 | 0.0045 | I | | | | | | | 16200 | | 660000 | 6,8 | | | | 352 | |
| PARATHION | 56-38-2 | [0.006] 0.00003 | [H] O | | | | | | | 2300 | | 20 | 2,4,5,6,7 | | | X | 375 | |
| PCBS, TOTAL (POLYCHLORINATED BIPHENYLS) (AROCLORS) | 1336-36-3 | | | 2 | I | | | 0.0001 | I | 78100 | | 0.0505 | 10,13 | | | | 360 | |
| PCB-1016 (AROCLOR) | 12674-11-2 | 0.00007 | I | [2] | [S] | | | [0.00057] | [S] | 110000 | | 0.25 | 5 | | | X | 325 | |
| [PCB-1221 (AROCLOR)] | [11104-28-2] | | | [2] | [S] | | | [0.00057] | [S] | [1900] | | [0.59] | [5] | | | [X] | [275] | |
| [PCB-1232 (AROCLOR)] | [11141-16-5] | | | [2] | [S] | | | [0.00057] | [S] | [1500] | | [1.45] | [7] | | | [X] | [290] | |
| [PCB-1242 (AROCLOR)] | [53469-21-9] | | | [2] | [S] | | | [0.00057] | [S] | [48000] | | [0.1] | [5] | | | [X] | [325] | |
| [PCB-1248 (AROCLOR)] | [12672-29-6] | | | [2] | [S] | | | [0.00057] | [S] | [190000] | | [0.054] | [7,9,11] | | | [X] | [340] | |
| PCB-1254 (AROCLOR) | 11097-69-1 | 0.00002 | I | [2] | [S] | | | [0.00057] | [S] | 810000 | | 0.057 | 5 | | | X | 365 | |
| [PCB-1260 (AROCLOR)] | [11096-82-5] | | | [2] | [S] | | | [0.00057] | [S] | [1800000] | | [0.08] | [5] | | | | [385] | |
| PEBULATE | 1114-71-2 | 0.05 | H | | | | | | | 630 | | 92 | 5 | | | X | 303 | |
| PENTACHLOROBENZENE | 608-93-5 | 0.0008 | I | | | | | | | 32000 | | 0.74 | 1,5,6,7 | | | | 277 | 0.37 |
| PENTACHLOROETHANE | 76-01-7 | | | 0.09 | P | | | | | 1905 | X | 480 | 1,3 | [13100] 13120 | [15100] 15102 | X | 160 | |
| PENTACHLORONITROBENZENE | 82-68-8 | 0.003 | I | 0.26 | H | | | | | 7900 | | 0.44 | 4,6,8 | | | | 328 | 0.36 |
| PENTACHLOROPHENOL | 87-86-5 | 0.005 | I | 0.4 | I | | | [0.0000046] 0.0000051 | C | 20000 | | 14 | 1,2,4,5 | | | | 310 | 0.17 |
| PERFLUOROBUTANE SULFONATE (PFBS) | 375-73-5 | 0.02 | P | | | | | | | 61.7 | | 56600 | 9 | | | X | 211 | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PERFLUOROOCTANE SULFONATE (PFOS) | 1763-23-1 | 0.00002 | M | 0.07 | M | | | | | 2.57 | | 680 | 19,20,21,22,23 | | | | 258 | |
| PERFLUOROOCTANOIC ACID (PFOA) | 335-67-1 | 0.00002 | M | | | | | | | 2.06 | | 9500 | 24 | | | | 192 | |
| PHENACETIN | 62-44-2 | | | 0.0022 | C | | | 0.00000063 | C | 110 | | 763 | 2,3,9 | | | | 341 | 4.50 |
| PHENANTHRENE | 85-01-8 | 0.3 | S | | | | | | | 38000 | X | 1.1 | 1,4,5 | 41808 | 70721 | | 341 | 0.63 |
| PHENOL | 108-95-2 | 0.3 | I | | | 0.2 | C | | | 22 | X | 84300 | 1,2,3,4 | [13000] 12977 | [14900] 14901 | | 182 | 36.14 |
| PHENYL MERCAPTAN | 108-98-5 | 0.001 | P | | | | | | | 562 | X | 653 | 5,9 | [13000] 13039 | [15000] 14989 | X | 170 | |
| PHENYLENEDIAMINE, M- | 108-45-2 | 0.006 | I | | | | | | | 12 | | 351000 | 3 | | | | 286 | 4.50 |
| PHENYLPHENOL, 2- | 90-43-7 | | | [0.0019] 0.00194 | H | | | | | 5,700 | | 700 | 5 | | | | 280 | 18.07 |
| PHORATE | 298-02-2 | 0.0002 | [H] O | | | | | | | 810 | | 50 | 2 | | | X | 319 | |
| PHTHALIC ANHYDRIDE | 85-44-9 | 2 | I | | | 0.02 | C | | | 79 | X | 6170 | 2 | 13018 | 14956 | | 285 | 13490.40 |
| PICLORAM | 1918-02-1 | 0.07 | I | | | | | | | 15 | | 430 | 2 | | | | 373 | |
| [POLYCHLORINATED BIPHENYLS (AROCLORS) (PCBS)] | [1336-36-3] | | | [2] | [I] | | | [0.00057] | [I] | | | [0.0505] | [10,13] | | | | [360] | |
| PROMETON | 1610-18-0 | 0.015 | I | | | | | | | 346 | | 750 | 2,5 | | | | 347 | |
| PRONAMIDE | 23950-58-5 | 0.075 | I | | | | | | | 200 | | 15 | 2 | | | | 321 | |
| PROPACHLOR | 1918-16-7 | 0.013 | I | | | | | | | 139 | X | | | 12952 | 14865 | | 110 | 1.73 |
| PROPANIL | 709-98-8 | 0.005 | I | | | | | | | 160 | | 225 | 2 | | | | 355 | |
| PROPANOL, 2- (ISOPROPYL ALCOHOL) | 67-63-0 | 2 | P | | | 0.2 | P | | | 25 | X | 1000000 | 2 | [13000] 12981 | [14900] 14906 | X | 82 | |
| PROPAZINE | 139-40-2 | 0.02 | I | | | | | | | 155 | | 8.6 | 1,5 | | | X | 318 | |
| PROPHAM | 122-42-9 | 0.02 | I | | | | | | | 51 | | 250 | 5 | | | | 257 | |
| PROPYLBENZENE, N- | 103-65-1 | 0.1 | X | | | 1 | X | | | 720 | X | 52 | 6 | [13100] 12971 | [15100] 14891 | X | 159 | |
| PROPYLENE OXIDE | 75-56-9 | 0.001 | O | 0.24 | I | 0.03 | I | 0.0000037 | I | 25 | X | 405000 | 1 | [13100] 13239 | [15000] 15057 | X | 34 | |
| PYRENE | 129-00-0 | 0.03 | I | | | | | | | 68000 | | 0.132 | 1 | | | | 393 | 0.07 |
| PYRETHRUM | 8003-34-7 | 0.044 | O | | | | | | | 5.62 | X | 0.35 | 13 | | | X | 170 | |
| PYRIDINE | 110-86-1 | 0.001 | I | | | | | | | 0.0066 | X | 1000000 | 2 | [13100] 13142 | [15000] 15114 | X | 115 | 18.07 |
| QUINOLINE | 91-22-5 | | | 3 | I | | | | | 1,300 | | 60000 | 1,3,5 | | | X | 238 | 12.65 |
| QUIZALOFOP (ASSURE) | 76578-14-8 | 0.009 | I | | | | | | | 580 | | 0.3 | 2 | | | | 220 | |

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| Regulated Substance | CAS | RfDo (mg/kg-d) | | CSFo (mg/kg-d)$^{-1}$ | | RfCl (mg/m$^3$) | | IUR (µg/m$^3$)$^{-1}$ | | Koc | VOC? | Aqueous Sol (mg/L) | Aqueous Sol Reference[1] | TF Vol from Surface Soil | TF Vol from SubSurface Soil | Organic Liquid | Boiling Point (degrees C) | Degradation Coefficient (K)(yr$^{-1}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RDX | 121-82-4 | [0.003] 0.004 | I | [0.11] 0.08 | I | | | | | 70 | | 59.9 | 1,9 | | | | 353 | |
| RESORCINOL | 108-46-3 | 2 | TE | | | | | | | 2 | | 717000 | | | | | 280 | |
| RONNEL | 299-84-3 | 0.05 | H | | | | | | | 580 | | 40 | 2 | | | | 349 | |
| SIMAZINE | 122-34-9 | 0.005 | I | 0.12 | H | | | | | 110 | | 5 | 5 | | | | 225 | |
| STRYCHNINE | 57-24-9 | 0.0003 | I | | | | | | | 280 | | 143 | 5 | | | | 270 | 4.50 |
| STYRENE | 100-42-5 | 0.2 | I | | | 1 | I | | | 910 | X | 300 | 5 | [13100] 12942 | [15100] 14850 | X | 145 | 1.20 |
| TEBUTHIURON | 34014-18-1 | 0.07 | I | | | | | | | 620 | | 2500 | 2 | | | | 394 | |
| TERBACIL | 5902-51-2 | 0.013 | I | | | | | | | 53 | | 710 | 2 | | | | 396 | |
| TERBUFOS | 13071-79-9 | 0.000025 | H | | | | | | | 510 | | 5 | 6 | | | X | 332 | |
| TETRACHLOROBENZENE, 1,2,4,5- | 95-94-3 | 0.0003 | I | | | | | | | 1,800 | | 0.583 | 1,5,6,7 | | | | 245 | 0.69 |
| TETRACHLORODIBENZO-P-DIOXIN, 2,3,7,8- (TCDD) | 1746-01-6 | 0.0000000007 | [D] I | 130000 | C | 0.00000004 | C | 38 | C | 4300000 | | 0.0000193 | 6 | | | | 412 | 0.21 |
| TETRACHLOROETHANE, 1,1,1,2- | 630-20-6 | 0.03 | I | 0.026 | I | | | 0.0000074 | I | 980 | X | 1100 | 1 | [13000] 12990 | [14600] 14921 | X | 131 | 3.79 |
| TETRACHLOROETHANE, 1,1,2,2- | 79-34-5 | 0.02 | I | 0.2 | I | | | 0.000058 | I | 79 | X | 2860 | 2 | [13100] 12957 | [15100] 14871 | X | 147 | 0.56 |
| TETRACHLOROETHYLENE (PCE) | 127-18-4 | 0.006 | I | 0.0021 | I | 0.04 | I | 0.00000026 | I | 300 | X | 162 | 1,2,3,4,5 | [13100] 13017 | [15000] 14955 | X | 121 | 0.03 |
| TETRACHLOROPHENOL, 2,3,4,6- | 58-90-2 | 0.03 | I | | | | | | | 6200 | | 183 | 6 | | | | 288 | 0.69 |
| TETRAETHYL LEAD | 78-00-2 | 0.0000001 | I | | | | | | | 4900 | | 0.8 | 5 | | | X | 202 | 4.50 |
| TETRAETHYLDITHIOPYROPHOSPHATE | 3689-24-5 | 0.0005 | I | | | | | | | 550 | | 25 | 2 | | | X | 349 | |
| TETRAHYDROFURAN | 109-99-9 | 0.9 | I | 0.0076 | [N] I | 2 | I | 0.00000194 | [N]I | 43 | X | 300000 | 1,6,7 | [13100] 12970 | [15100] 14891 | X | 66 | |
| THIOFANOX | 39196-18-4 | 0.0003 | H | | | | | | | 0.022 | | 5200 | 9 | | | | 280 | |
| THIRAM | 137-26-8 | [0.005] 0.015 | [I] O | | | | | | | 1000 | | 30 | 4 | | | | 339 | |
| TOLUENE | 108-88-3 | 0.08 | I | | | 5 | I | | | 130 | X | 532.4 | 1,2,3,4 | [13100] 13016 | [15000] 14953 | X | 111 | 9.01 |
| TOLUIDINE, M- | 108-44-1 | | | 0.016 | S | | | 0.000051 | S | 140 | | 15030 | 6 | | | X | 203 | |
| TOLUIDINE, O- | 95-53-4 | | | 0.016 | P | | | 0.000051 | C | 410 | | 15000 | 1,3,5 | | | X | 200 | 18.07 |
| TOLUIDINE, P- | 106-49-0 | 0.004 | X | 0.03 | P | | | | | 320 | | 7410 | 1,2,3 | | | | 200 | |
| TOXAPHENE | 8001-35-2 | [0.0004] 0.00009 | [M] P | 1.1 | I | | | 0.00032 | I | 1500 | | 3 | 2,4,5 | | | | 432 | |
| TRIALLATE | 2303-17-5 | [0.013] 0.025 | [I] O | 0.717 | O | | | | | 2,000 | | 4 | 5 | | | X | 343 | |

[1]Aqueous solubility references are keyed to the numbered list found at §250.304(f). Where there are multiple sources cited. The table value is the median of the values in the individual references.

Toxicity Value Sources:
C = California EPA [Cancer Potency Factor]
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M = EPA Drinking Water Regulations and Health Advisories
[N = EPA NCEA Provisional Values] O = EPA Office of Pesticide Programs Human Health Benchmarks for Pesticides
P = EPA Provisional Peer-Reviewed Toxicity Value
S = surrogate
[T = TEF]
TE = TERA ITER Peer-Reviewed Value
X = EPA Provisional Peer-Reviewed Toxicity Value Appendix

**Appendix A**
**Table 5 – Physical and Toxicological Properties**
**A. Organic Regulated Substances**

| Regulated Substance | CAS | RfDo (mg/kg-d) | | CSFo (mg/kg-d)$^{-1}$ | | RfCl (mg/m$^3$) | | IUR (µg/m$^3$)$^{-1}$ | | Koc | VOC? | Aqueous Sol (mg/L) | Aqueous Sol Reference[1] | TF Vol from Surface Soil | TF Vol from SubSurface Soil | Organic Liquid | Boiling Point (degrees C) | Degradation Coefficient (K)(yr$^{-1}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TRIBROMOMETHANE (BROMOFORM) | 75-25-2 | 0.02 | I | 0.0079 | I | | | 0.0000011 | I | 130 | X | 3050 | 1,2,3,4 | [13100] 12942 | [15100] 14849 | X | 149 | 0.69 |
| TRICHLORO-1,2,2-TRIFLUOROETHANE, 1,1,2- | 76-13-1 | 30 | I | | | [30] S | [H] P | | | 1,200 | X | 170 | 1 | [13100] 13064 | [15000] 15014 | X | 48 | 0.35 |
| TRICHLOROACETIC ACID | 76-03-9 | 0.02 | I | 0.07 | I | | | | | 20 | X | 1200000 | 2,3,5,9 | 13291 | 15077 | | 196 | |
| TRICHLOROBENZENE, 1,2,4- | 120-82-1 | 0.01 | I | 0.029 | P | 0.002 | P | | | 1500 | X | 44.4 | 1,4,6,7 | 13217 | 15233 | X | 213 | 0.69 |
| TRICHLOROBENZENE, 1,3,5- | 108-70-3 | 0.006 | M | | | 0.002 | S | | | 3100 | X | 5.8 | 5 | 15677 | 18611 | | 208 | |
| TRICHLOROETHANE, 1,1,1- | 71-55-6 | 2 | I | | | 5 | I | | | 100 | X | 1495 | 1,4,5,6 | [13100] 13116 | [15000] 15082 | X | 74 | 0.05 |
| TRICHLOROETHANE, 1,1,2- | 79-00-5 | 0.004 | I | 0.057 | I | 0.0002 | X | 0.000016 | I | 76 | X | 4420 | 1 | [13100] 12982 | [15100] 14909 | X | 114 | 0.03 |
| TRICHLOROETHYLENE (TCE) | 79-01-6 | 0.0005 | I | [0.05] 0.046 | I | 0.002 | I | 0.000004 | I | 93 | X | 1100 | 1 | [13100] 13070 | [15000] 15022 | X | 87 | 0.02 |
| TRICHLOROPHENOL, 2,4,5- | 95-95-4 | 0.1 | I | | | | | | | 2400 | | 1000 | 1,2,4 | | | | 246 | 0.14 |
| TRICHLOROPHENOL, 2,4,6- | 88-06-2 | 0.001 | P | 0.011 | I | | | 0.0000031 | I | 1100 | | 850 | 1,2,4,5 | | | | 246 | 0.14 |
| TRICHLOROPHENOXYACETIC ACID, 2,4,5- (2,4,5-T) | 93-76-5 | 0.01 | I | | | | | | | 43 | | 278 | 2,4,5 | | | | 279 | 1.39 |
| TRICHLOROPHENOXYPROPIONIC ACID, 2,4,5- (2,4,5-TP)(SILVEX) | 93-72-1 | 0.008 | I | | | | | | | 1700 | | 140 | 2 | | | | 353 | |
| TRICHLOROPROPANE, 1,1,2- | 598-77-6 | 0.005 | I | | | | | | | 24 | X | 2700 | 14 | [13100] 13145 | [15000] 15119 | X | 117 | |
| TRICHLOROPROPANE, 1,2,3- | 96-18-4 | 0.004 | I | 30 | I | 0.0003 | I | | | 280 | X | 1896 | 1,4,6 | [13100] 12974 | [15100] 14896 | X | 157 | 0.35 |
| TRICHLOROPROPENE, 1,2,3- | 96-19-5 | 0.003 | X | | | 0.0003 | P | | | 190 | X | 2700 | 14 | [13100] 13047 | [15000] 14992 | X | 142 | |
| TRIETHYLAMINE | 121-44-8 | | | | | 0.007 | I | | | 51 | X | 55000 | 1,4 | [13100] 12951 | [15100] 14862 | X | 90 | |
| TRIETHYLENE GLYCOL | 112-27-6 | 2 | P | | | | | | | 6 | | 1000000 | 12 | | | X | 285 | |
| TRIFLURALIN | 1582-09-8 | 0.0075 | I | 0.0077 | I | | | | | 720 | | 4 | 2,5,6,7 | | | | 382 | |
| TRIMETHYLBENZENE, 1,3,4- (TRIMETHYLBENZENE, 1,2,4-) | 95-63-6 | 0.01 | I | | | [0.007] 0.06 | [P] I | | | 2,200 | X | 56 | 1 | [13100] 12978 | [15000] 14904 | X | 169 | 4.50 |
| TRIMETHYLBENZENE, 1,3,5- | 108-67-8 | 0.01 | [X] I | | | 0.06 | I | | | 660 | X | 48.9 | 1 | [13100] 12961 | [15100] 14876 | X | 165 | |
| TRINITROGLYCEROL (NITROGLYCERIN) | 55-63-0 | 0.0001 | P | 0.017 | P | | | | | 116 | X | 1800 | 2,3,5 | [13000] 12941 | [15000] 14848 | X | 190 | 18.07 |
| TRINITROTOLUENE, 2,4,6- | 118-96-7 | 0.0005 | I | 0.03 | I | | | | | 1 | | 100 | 2 | | | | 240 | |
| VINYL ACETATE | 108-05-4 | 1 | H | | | 0.2 | I | | | 2.8 | X | 20000 | 1 | [13200] 13017 | [15000] 14955 | X | 73 | |

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Toxicity Value Sources:

C = California EPA [Cancer Potency Factor]

D = ATSDR Minimal Risk Level

H = Health Effects Assessment Summary Table (HEAST)

I = Integrated Risk Information System (IRIS)

M = EPA Drinking Water Regulations and Health Advisories

[N = EPA NCEA Provisional Values] Q = EPA Office of Pesticide Programs Human Health Benchmarks for Pesticides

P = EPA Provisional Peer-Reviewed Toxicity Value

S = surrogate

[T = TEF]

TE = TERA ITER Peer-Reviewed Value

X = EPA Provisional Peer-Reviewed Toxicity Value Appendix

**Appendix A**
**Table 5 – Physical and Toxicological Properties**
**A. Organic Regulated Substances**

| Regulated Substance | CAS | RfDo (mg/kg-d) | | CSFo (mg/kg-d)$^{-1}$ | | RfCi (mg/m$^3$) | | IUR (µg/m$^3$)$^{-1}$ | | Koc | VOC? | Aqueous Sol (mg/L) | Aqueous Sol Reference[1] | TF Vol from Surface Soil | TF Vol from SubSurface Soil | Organic Liquid | Boiling Point (degrees C) | Degradation Coefficient (K)(yr$^{-1}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VINYL BROMIDE (BROMOETHENE) | 593-60-2 | | | | | 0.003 | I | 0.000032 | H | 150 | X | 4180 | 12 | [13100] 13086 | [15000] 15043 | X | 16 | 0.09 |
| VINYL CHLORIDE | 75-01-4 | 0.003 | I | 1.5 | I | 0.1 | I | [0.000009] 0.0000088 | I | 10 | X | 2700 | 1 | [13200] 13109 | [15000] 15040 | X | -13 | 0.09 |
| WARFARIN | 81-81-2 | 0.0003 | I | | | | | | | 910 | | 17 | 4 | | | | 356 | 4.50 |
| XYLENES (TOTAL) | 1330-20-7 | 0.2 | I | | | 0.1 | I | | | 350 | X | 175 | 13 | [13100] 12982 | [15000] 14909 | X | 140 | 0.69 |
| ZINEB | 12122-67-7 | 0.05 | I | | | | | | | 19 | | 10 | 4 | | | | 474 | |

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Toxicity Value Sources:
C = California EPA [Cancer Potency Factor]
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H = Health Effects Assessment Summary Table (HEAST)
I = Integrated Risk information System (IRIS)
M = EPA Drinking Water Regulations and Health Advisories
[N = EPA NCEA Provisional Values] O = EPA Office of Pesticide Programs Human Health Benchmarks for Pesticides
P = EPA Provisional Peer-Reviewed Toxicity Value
S = surrogate
[T = TEF]
TE = TERA ITER Peer-Reviewed Value
X = EPA Provisional Peer-Reviewed Toxicity Value Appendix

## Appendix A
## Table 5 – Physical and Toxicological Properties
## B. Inorganic Regulated Substances

| Regulated Substance | CAS | RfDo (mg/kg-d) | | CSFo $(mg/kg\text{-}d)^{-1}$ | | RfCi $(mg/m^3)$ | | IUR $(ug/m^3)^{-1}$ | | Kd |
|---|---|---|---|---|---|---|---|---|---|---|
| ALUMINUM | 7429-90-5 | 1 | P | | | 0.005 | P | | | 9.9 |
| ANTIMONY | 7440-36-0 | 0.0004 | I | | | | | | | 45 |
| ARSENIC | 7440-38-2 | 0.0003 | I | 1.5 | I | 0.000015 | C | 0.0043 | I | 29 |
| BARIUM AND COMPOUNDS | 7440-39-3 | 0.2 | I | | | 0.0005 | H | | | 41 |
| BERYLLIUM | 7440-41-7 | 0.002 | I | | | 0.00002 | I | 0.0024 | I | 790 |
| BORON AND COMPOUNDS | 7440-42-8 | 0.2 | I | | | 0.02 | H | | | 3 |
| CADMIUM | 7440-43-9 | 0.0005 | I | | | 0.00001 | D | 0.0018 | I | 75 |
| CHROMIUM III | 16065-83-1 | 1.5 | I | | | | | | | 1,800,000 |
| CHROMIUM VI | 18540-29-9 | 0.003 | I | [0.42] 0.5 | C | 0.000008 | I | [0.084] 0.012 | I | 19 |
| COBALT | 7440-48-4 | 0.0003 | P | | | 0.000006 | P | 0.009 | P | 45 |
| COPPER | 7440-50-8 | [0.037] 0.0325 | H | | | | | | | 430 |
| CYANIDE, FREE | 57-12-5 | 0.0006 | I | | | 0.0008 | I | | | 9.9 |
| FLUORIDE | 16984-48-8 | 0.04 | C | | | 0.013 | C | | | |
| IRON | 7439-89-6 | 0.7 | P | | | | | | | 25 |
| LEAD | 7439-92-1 | | | 0.0085 | C | | | 0.000012 | C | 900 |
| LITHIUM | 7439-93-2 | 0.002 | P | | | | | | | 300 |
| MANGANESE | 7439-96-5 | [0.047] 0.14 | I | | | 0.00005 | I | | | 65 |
| MERCURY | 7439-97-6 | 0.00016 | C | | | 0.0003 | I | | | 52 |
| MOLYBDENUM | 7439-98-7 | 0.005 | I | | | | | | | 20 |
| NICKEL | 7440-02-0 | 0.02 | I | | | 0.00009 | D | 0.00024 | Is | 65 |
| NITRATE NITROGEN | 14797-55-8 | 1.6 | I | | | | | | | |
| NITRITE NITROGEN | 14797-65-0 | 0.1 | I | | | | | | | |
| PERCHLORATE | 7790-98-9 | 0.0007 | I | | | | | | | 0 |
| SELENIUM | 7782-49-2 | 0.005 | I | | | 0.02 | C | | | 5 |
| SILVER | 7440-22-4 | 0.005 | I | | | | | | | 8.3 |
| STRONTIUM | 7440-24-6 | [0.06] 0.6 | I | | | | | | | |
| THALLIUM | 7440-28-0 | 0.00001 | X | | | | | | | 71 |
| TIN | 7440-31-5 | 0.6 | H | | | | | | | 250 |
| VANADIUM | 7440-62-2 | 0.00007 | P | | | 0.0001 | D | | | 1,000 |
| ZINC | 7440-66-6 | 0.3 | I | | | | | | | 62 |

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X = EPA Provisional Peer-Reviewed Toxicity Value Appendix
s = surrogate

## Appendix A

### Table 6 – Threshold of Regulation Compounds

| *REGULATED SUBSTANCE* | *CASRN* | *ALL AQUIFER GROUNDWATER MSC (µg/L)* | *Residential Soil MSC (mg/kg) 0-15 feet* | *Non-Residential Soil MSCs* | | *Soil to Groundwater[1] (mg/kg)* |
|---|---|---|---|---|---|---|
| | | | | *Surface Soil (mg/kg) 0-2 feet* | *Subsurface Soil (mg/kg) 2-15 feet* | |
| ACETIC ACID | 64-19-7 | 5 | 100 | 100 | 100 | 0.5 |
| ACETIC ANHYDRIDE | 108-24-7 | 5 | 100 | 100 | 100 | 0.5 |
| AMYL ACETATE, N- | 628-63-7 | 5 | 100 | 100 | 100 | 0.5 |
| AMYL ACETATE, SEC- | 626-38-0 | 5 | 100 | 100 | 100 | 0.5 |
| ANTU (ALPHA-NAPHTHYLTHIOUREA) | 86-88-4 | 5 | 100 | 100 | 100 | 0.5 |
| BHC, DELTA | 319-86-8 | 5 | 100 | 100 | 100 | 0.5 |
| BROMOPHENYL PHENYL ETHER, 4- | 101-55-3 | 5 | 100 | 100 | 100 | 0.5 |
| BUTYL ACETATE, N- | 123-86-4 | 5 | 100 | 100 | 100 | 0.5 |
| BUTYL ACETATE, SEC- | 105-46-4 | 5 | 100 | 100 | 100 | 0.5 |
| BUTYL ACETATE, TERT- | 540-88-5 | 5 | 100 | 100 | 100 | 0.5 |
| BUTYLAMINE, N- | 109-73-9 | 5 | 100 | 100 | 100 | 0.5 |
| CALCIUM CHROMATE | 13765-19-0 | 5 | 100 | 100 | 100 | 0.5 |
| CALCIUM CYANAMIDE | 156-62-7 | 5 | 100 | 100 | 100 | 0.5 |
| CARBONYL FLUORIDE | 353-50-4 | 5 | 100 | 100 | 100 | 0.5 |
| CATECHOL | 120-80-9 | 5 | 100 | 100 | 100 | 0.5 |
| CHLOROETHYL VINYL ETHER, 2- | 110-75-8 | 5 | 100 | 100 | 100 | 0.5 |
| CHLOROPHENYL PHENYL ETHER, 4- | 7005-72-3 | 5 | 100 | 100 | 100 | 0.5 |
| DECABORANE | 17702-41-9 | 5 | 100 | 100 | 100 | 0.5 |
| DIETHYLAMINE | 109-89-7 | 5 | 100 | 100 | 100 | 0.5 |
| DIGLYCIDYL ETHER (DGE) | 7/5/2238 | 5 | 100 | 100 | 100 | 0.5 |
| DIMETHYL PHTHALATE | 131-11-3 | 5 | 100 | 100 | 100 | 0.5 |
| DIMETHYL SULFATE | 77-78-1 | 5 | 100 | 100 | 100 | 0.5 |
| DIMETHYLPHENETHYLAMINE, ALPHA, ALPHA- | 122-09-8 | 5 | 100 | 100 | 100 | 0.5 |
| DIOXATHION | 78-34-2 | 5 | 100 | 100 | 100 | 0.5 |
| ETHYL METHANESULFONATE | 62-50-0 | 5 | 100 | 100 | 100 | 0.5 |
| ETHYLAMINE | 75-04-7 | 5 | 100 | 100 | 100 | 0.5 |
| **[ETHYLENE CHLORHYDRIN]** | **[107-07-3]** | **[5]** | **[100]** | **[100]** | **[100]** | **[0.5]** |
| FAMPHUR | 52-85-7 | 5 | 100 | 100 | 100 | 0.5 |

## Appendix A

### Table 6 – Threshold of Regulation Compounds

| *REGULATED SUBSTANCE* | *CASRN* | *ALL AQUIFER GROUNDWATER MSC (µg/L)* | *Residential Soil MSC (mg/kg) 0-15 feet* | *Non-Residential Soil MSCs* | | *Soil to Groundwater[1] (mg/kg)* |
|---|---|---|---|---|---|---|
| | | | | *Surface Soil (mg/kg) 0-2 feet* | *Subsurface Soil (mg/kg) 2-15 feet* | |
| FENSULFOTHION | 115-90-2 | 5 | 100 | 100 | 100 | 0.5 |
| HEXACHLOROPROPENE | 1888-71-7 | 5 | 100 | 100 | 100 | 0.5 |
| IODOMETHANE | 74-88-4 | 5 | 100 | 100 | 100 | 0.5 |
| ISOAMYL ACETATE | 123-92-2 | 5 | 100 | 100 | 100 | 0.5 |
| ISOBUTYL ACETATE | 110-19-0 | 5 | 100 | 100 | 100 | 0.5 |
| ISODRIN | 465-73-6 | 5 | 100 | 100 | 100 | 0.5 |
| ISOPHORONE DIISOCYANATE | 4098-71-9 | 5 | 100 | 100 | 100 | 0.5 |
| ISOSAFROLE | 120-58-1 | 5 | 100 | 100 | 100 | 0.5 |
| LITHIUM HYDRIDE | 7580-67-8 | 5 | 100 | 100 | 100 | 0.5 |
| MANGANESE CYCLOPENTADIENYL TRICARBONYL | 12079-65-1 | 5 | 100 | 100 | 100 | 0.5 |
| METHYL ISOAMYL KETONE | 110-12-3 | 5 | 100 | 100 | 100 | 0.5 |
| METHYL MERCAPTAN | 74-93-1 | 5 | 100 | 100 | 100 | 0.5 |
| METHYLAMINE | 74-89-5 | 5 | 100 | 100 | 100 | 0.5 |
| **[MEVINPHOS]** | **[7786-34-7]** | **[5]** | **[100]** | **[100]** | **[100]** | **[0.5]** |
| MONOCROTOPHOS | 6923-22-4 | 5 | 100 | 100 | 100 | 0.5 |
| NAPHTHOQUINONE, 1,4- | 130-15-4 | 5 | 100 | 100 | 100 | 0.5 |
| NITRIC ACID | 7697-37-2 | 5 | 100 | 100 | 100 | 0.5 |
| NITROQUINOLINE-1-OXIDE, 4- | 56-57-5 | 5 | 100 | 100 | 100 | 0.5 |
| OSMIUM TETROXIDE | 20816-12-0 | 5 | 100 | 100 | 100 | 0.5 |
| PENTABORANE | 19624-22-7 | 5 | 100 | 100 | 100 | 0.5 |
| PERCHLOROMETHYL MERCAPTAN | 594-42-3 | 5 | 100 | 100 | 100 | 0.5 |
| PICOLINE, 2- | 109-06-8 | 5 | 100 | 100 | 100 | 0.5 |
| PROPANOL, 1- | 71-23-8 | 5 | 100 | 100 | 100 | 0.5 |
| PROPIONIC ACID | 79-09-4 | 5 | 100 | 100 | 100 | 0.5 |
| PROPIONITRILE (ETHYL CYANIDE) | 107-12-0 | 5 | 100 | 100 | 100 | 0.5 |
| PROPYLENE IMINE | 75-55-8 | 5 | 100 | 100 | 100 | 0.5 |
| **[PYRETHRUM]** | **[8003-34-7]** | **[5]** | **[100]** | **[100]** | **[100]** | **[0.5]** |
| QUINONE (p-BENZOQUINONE) | 106-51-4 | 5 | 100 | 100 | 100 | 0.5 |

## Appendix A

### Table 6 – Threshold of Regulation Compounds

| *REGULATED SUBSTANCE* | *CASRN* | *ALL AQUIFER GROUNDWATER MSC (µg/L)* | *Residential Soil MSC (mg/kg) 0-15 feet* | *Non-Residential Soil MSCs* | | *Soil to Groundwater[1] (mg/kg)* |
|---|---|---|---|---|---|---|
| | | | | *Surface Soil (mg/kg) 0-2 feet* | *Subsurface Soil (mg/kg) 2-15 feet* | |
| SELENIUM HEXAFLUORIDE | 7783-79-1 | 5 | 100 | 100 | 100 | 0.5 |
| SODIUM BISULFITE | 7631-90-5 | 5 | 100 | 100 | 100 | 0.5 |
| SULFIDE | 18496-25-8 | 5 | 100 | 100 | 100 | 0.5 |
| SULFUR MONOCHLORIDE | 10025-67-9 | 5 | 100 | 100 | 100 | 0.5 |
| SULFURIC ACID | 7664-93-9 | 5 | 100 | 100 | 100 | 0.5 |
| TELLURIUM | 13494-80-9 | 5 | 100 | 100 | 100 | 0.5 |
| TELLURIUM HEXAFLUORIDE | 7783-80-4 | 5 | 100 | 100 | 100 | 0.5 |
| TEPP (TETRAETHYL PYROPHOSPHATE) | 107-49-3 | 5 | 100 | 100 | 100 | 0.5 |
| TETRANITROMETHANE | 509-14-8 | 5 | 100 | 100 | 100 | 0.5 |
| THIONAZIN | 297-97-2 | 5 | 100 | 100 | 100 | 0.5 |
| TRIETHYLPHOSPHOROTHIOATE, O,O,O- | 126-68-1 | 5 | 100 | 100 | 100 | 0.5 |

[1] The value in the table is 100 time the groundwater MSC.
The option to use the SPLP is also available to calculate the soil to groundwater numeric value (See §250.310)

**APPENDIX A**
**Table 7**
**DEFAULT VALUES FOR CALCULATING MEDIUM-SPECIFIC CONCENTRATIONS FOR LEAD**

**[Input Values Used in UBK Model for Lead**
**[(for residential exposure scenario)**

| | | | |
|---|---|---|---|
| Geometric Standard Deviation (GSD) | 1.42 (default) | Drinking water intake | Model default |
| Outdoor air lead concentration | 0.2 µg/m$^3$ (default) | Soil lead level | 495 µg/g |
| Indoor air lead concentration (% of outdoor) | 30 | Indoor dust lead level | 495 µg/g |
| Time spent outdoors | Model default | Soil/dust ingestion weighting factor (%) | 45 |
| Ventilation rate | Model default | Paint lead intake | Model default |
| Lung absorption | Model default | Maternal contribution method | Infant model |
| Dietary lead intake | Model default | Mother's blood lead at birth | 7.5 µg/dL blood (model default) |
| GI method/bioavailability | Non-linear | Target blood lead level | 10 µg/dL blood |
| Lead concentration in drinking water | 4.00 µg/L (default)] | | |

**[Input Values Used in SEGH Equation**
**(for nonresidential exposure scenario)**

| | |
|---|---|
| Concentration of lead in soil (S) | 987 µg/g |
| Target blood lead level in adults (T) | 20 µg/dL blood |
| Geometric standard deviation of blood lead distribution (G) | 1.4 |
| Baseline blood lead level in target population (B) | 4 µg/dL blood |
| Number of standard deviations corresponding to degree of protection required for the target population (n) | 1.645 (for 95% of population) |
| Slope of blood lead to soil lead relationship (δ) | 7.5 µg/dL blood per µg/g soil] |

**[REFERENCE**

*WIXSON, B.G. (1991). The Society for Environmental Geochemistry and Health (SEGH) Task Force Approach to the Assessment of Lead in Soil. Trace Substances in Environmental Health . 11-20.]*

| Input Values Used in IEUBK Model for Lead (for residential exposure scenario) | | |
|---|---|---|
| **Parameter** | **Value** | |
| Outdoor Air Pb Concentration (µg/m$^3$) | Constant Value: 0.1 | |
| Dietary Lead Intake (µg/day) | Age (Years) | Input |
| | 0-1 | 2.26 |
| | 1-2 | 1.96 |
| | 2-3 | 2.13 |
| | 3-4 | 2.04 |
| | 4-5 | 1.95 |
| | 5-6 | 2.05 |
| | 6-7 | 2.22 |
| Water Consumption (L/day) | Age (Years) | Input |
| | 0-1 | 0.2 |
| | 1-2 | 0.5 |
| | 2-3 | 0.52 |
| | 3-4 | 0.53 |
| | 4-5 | 0.55 |
| | 5-6 | 0.58 |
| | 6-7 | 0.59 |
| Use Alternate Water Value? | NO | |
| Lead concentration in drinking water (µg/L) | 4 | |
| MEDIA | ABSORPTION FRACTION PERCENT | |
| Soil | 30 | |
| Dust | 30 | |
| Water | 50 | |
| Diet | 50 | |
| Alternate | 0 | |
| Calculate PRG | | |
| Select Age Group for Graph | 0 to 84 months | |
| Change Cutoff | TBD | |
| Change GSD | 1.6 | |
| Probability of Exceeding the Cutoff | 5 | |

| Input Values Used in the Adult Lead Model (ALM) (for non-residential exposure scenario) | | | |
|---|---|---|---|
| Variable | Description of Variable | Units | Value |
| $PbB_{fetal,\ 0.95}$ | Target PbB in fetus | µg/dL | TBD |
| $R_{fetal/maternal}$ | Fetal/maternal PbB ratio | -- | 0.9 |
| BKSF | Biokinetic Slope Factor | µg/dL per µg/day | 0.4 |
| $GSD_i$ | Geometric standard deviation PbB | -- | 1.8 |
| $PbB_0$ | Baseline PbB | µg/dL | 0.6 |

| | | | |
|---|---|---|---|
| $IR_S$ | Soil ingestion rate | g/day | 0.050 |
| $AF_{S,D}$ | Absorption fraction | – | 0.12 |
| $EF_{S,D}$ | Exposure frequency | days/yr | 219 |
| $AT_{S,D}$ | Averaging time | days/yr | 365 |

*Cleanup Standards Scientific Advisory Board*
To the Pennsylvania Department of Environmental Protection

November 4, 2019

**VIA ELECTRONIC MAIL**
The Honorable Patrick McDonnell
Secretary
Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building
401 Market Street
Harrisburg, PA 17105-2063

Re: Proposed Amendments to 25 Pa. Code Chapter 250

Dear Secretary McDonnell:

The Cleanup Standards Scientific Advisory Board ("CSSAB") has been working for more than a year with the Pennsylvania Department of Environmental Protection (the "Department") regarding proposed changes to the regulations implementing the Pennsylvania Land Recycling and Environmental Remediation Standards Act ("Act 2") as set forth in 25 Pa. Code Chapter 250. The Department has expended significant time and energy in developing the proposed regulations and should be commended for this effort.

At the meeting with the CSSAB on October 29, 2019, the Department reviewed the version of the proposed regulations that the Department intends to submit to the Environmental Quality Board ("EQB") for consideration by the EQB at its meeting on November 19, 2019. While the Department shared with the CSSAB proposed changes to the regulations in 25 Pa. Code Chapter 250 and the tables contained in Appendix A of 25 Pa. Code Chapter 250, other documents such as the preamble to the proposed regulations and the regulatory cost analysis were not provided to the CSSAB. During discussions at the meeting, the Department represented that it had not made any additional proposed changes to the tables in Appendix A of 25 Pa. Code Chapter 250 beyond those reviewed during the CSSAB meeting on June 12, 2019. The Department also clarified that the medium specific concentrations ("MSCs") in the proposed tables in Appendix A of 25 Pa. Code Chapter 250 for total concentrations of polychlorinated biphenyls ("PCBs") versus Aroclor-specific concentrations of PCBs are to be used on an "either or" basis. In other words, a remediator may choose either to use the MSCs for total PCBs or the MSCs for PCBs that are Aroclor-specific.

The Department has requested that the CSSAB endorse the proposed regulations. While the CSSAB can endorse many elements of the proposed regulations, it cannot provide a full endorsement of the regulations. Specifically, the CSSAB has concerns that the underlying science on which the MSCs for vanadium are based has low confidence as described in further detail below. Further, the residential soil MSC for vanadium is below background levels and will have a significant detrimental impact on the clean fill program. The CSSAB recommends revision or removal of the MSCs for vanadium that are included in the proposed regulations. We look forward to working with the Department with the

objective of making needed changes to the MSCs for vanadium before the proposed regulations are finalized.

As the CSSAB has explained in discussions with the Department and various submittals that it has made to the Department, the MSC for vanadium in soils at residential properties that was included in the most recent set of amendments to the regulations under Act 2 is well below naturally occurring background levels of vanadium and is significantly out of step with screening values and cleanup standards for vanadium developed by the United States Environmental Protection Agency ("EPA") and other state regulatory agencies. In fact, it appears to be substantially lower than any published federal or state value. The Department has based the MSCs for vanadium on a Provisional Peer-Reviewed Toxicity Value ("PPRTV") published by EPA's National Center for Environmental Assessment in 2009. The PPRTV database was developed by EPA to quantitatively evaluate the risk of chemicals that have not been evaluated in EPA's Integrated Risk Information System ("IRIS"), the database of toxicological information that is generally given the greatest weight in risk evaluations. The PPRTVs are developed specifically for use in site-specific risk assessments for EPA's Superfund Program. That process does not include interagency review or the external peer review with a public notice and comment period required for toxicity values to be placed in IRIS.

The PPRTV for vanadium is based on studies using sodium metavanadate. EPA has applied an uncertainty factor of 3,000 to the PPRTV for vanadium and has assigned a "low confidence" rating to the PPRTV for vanadium. Notwithstanding these limitations, the Department is using the PPRTV for vanadium even though information for another vanadium compound (vanadium pentoxide) is available in IRIS. The current oral toxicity value in the IRIS database is assigned a "low confidence" rating. It was developed in 1987 using an uncertainty factor of 100. We note that both vanadium pentoxide and sodium metavanadate are vanadium compounds containing vanadium in a +5 oxidation state. Although the toxicological information regarding vanadium pentoxide (and other vanadium compounds) is under review by EPA and a draft external peer review evaluation from 2011 suggests that the uncertainty factor should potentially be higher, that information continues to be included in the IRIS database (i.e., EPA has not removed that information).

We also note that regional screening levels ("RSLs") have been developed for use in remediation activities at Superfund sites being addressed pursuant to the Comprehensive Environmental Response, Compensation and Liability Act and corrective action sites pursuant to the Resource Conservation and Recovery Act. The RSLs are used to screen on a threshold basis whether the presence of particular substances requires further investigation or cleanup at such sites. Screening values based on the RSLs serve a similar purpose in the context of sites being addressed under the site-specific standard of Act 2. The information for vanadium pentoxide rather than for sodium metavanadate was used for the RSLs for vanadium.

Due to uncertainties in the science underlying the toxicity for vanadium and its compounds, EPA has indicated that it plans to conduct a further evaluation of the toxicity of various vanadium compounds as part of the IRIS program driven in part by concerns over the level of confidence in the toxicological information that is available. However, there is no completion date scheduled for that evaluation and

the first step of the evaluation is only targeted to take place during the second quarter of fiscal year 2020.

The MSCs for vanadium have already created significant implementation problems at sites being remediated in Pennsylvania under Act 2 and those issues will continue if no changes are made. Moreover, the Department is incorporating by reference the MSC for vanadium in soils at residential properties as the clean fill standard in the revised version of the Management of Fill Policy that was published in the Pennsylvania Bulletin on November 2, 2019, and is mandating that historic fill be analyzed for vanadium in order to qualify as clean fill. The impact of reducing the clean fill standard to a level well below background concentrations should not be underestimated.

Given the forgoing considerations and current circumstances, there are multiple options available to the Department to develop updated MSCs for vanadium rather than leaving the MSCs where they are. Among these options is eliminating the MSCs for vanadium until EPA completes its additional evaluation of the toxicity of various vanadium compounds.

The CSSAB remains committed to working with the Department to develop MSCs for vanadium that are protective of human health and the environment, while taking into account the toxicological information that exists, the level of confidence in that information and the need to avoid needlessly complicating cleanup activities under Act 2 and clean fill determinations under the Management of Fill Policy. We look forward to this continuing process with the objective of making needed changes to the MSCs for vanadium before the proposed regulations are finalized.

Respectfully submitted,

Charles D. Campbell

Charles D. Campbell
Chair/CSSAB

Michael M. Meloy

Michael M. Meloy
Vice-Chair/CSSAB

cc: Troy Conrad, Program Manager (tconrad@pa.gov)
Lee McDonnell, Program Manager (lemcdonnell@pa.gov)
Mike Maddigan, Environmental Group Manager (mmaddigan@pa.gov)

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

January 27, 2020

David Sumner
Executive Director
Independent Regulatory Review Commission
333 Market Street, 14th Floor
Harrisburg, PA 17120

Re: Proposed Rulemaking: Administration of the Land Recycling Program (#7-552)

Dear Mr. Sumner:

Pursuant to Section 5(a) of the Regulatory Review Act, please find enclosed a copy of a proposed rulemaking for review by the Independent Regulatory Review Commission (Commission). This proposal is scheduled for publication in the *Pennsylvania Bulletin* on February 15, 2020, with a 60-day public comment period. The Environmental Quality Board (EQB or Board) adopted this proposal on November 19, 2019.

The enclosed proposed rulemaking amends 25 Pa. Code Chapter 250 (relating to administration of the land recycling program) to update Statewide health standard medium-specific concentrations (MSC) pertaining to cleanup of soil and groundwater contamination for many contaminants. DEP is also proposing to add MSCs for three new contaminants, including Perfluorooctanoic Acid (PFOA), Perfluorooctance Sulfonate (PFOS), and Perfluorobutane Sulfonate (PFBS). These contaminants are within the Per- and Poly-fluoroalkyl Acid (PFAS) family of compounds for which the U.S. Environmental Protection Agency (EPA) has published toxicological data. The proposal would also clarify administrative elements of Chapter 250.

This proposed rulemaking is authorized under sections 104(a) and 303(a) of the Land Recycling and Environmental Remediation Standards Act (Act 2), 35 P.S. §§ 6026.104(a) and 6026.303(a), which direct the Board to adopt and amend periodically by regulation Statewide health standards for regulated substances for each environmental medium. This includes any health-based standards adopted by the Federal government by regulation or statute, and health advisory levels (HAL), and which direct the Board to promulgate appropriate mathematically valid statistical tests to define compliance with Act 2, and other regulations as necessary to implement the provisions of Act 2.

Chapter 250 requires that the Department of Environmental Protection (Department) review and update MSC values and the associated toxicological data on a timely basis to ensure that environmental response actions at contaminated sites are remediated based on current EPA guidance and current toxicological information. The Board last promulgated amendments to Chapter 250 on August 27, 2016 (46 Pa.B. 5655). This ongoing review process ensures the protection of public health and the environment from exposures to regulated substances,

especially when it has been determined that lower concentrations of a regulated substance are necessary. When it has been determined that higher concentrations of regulated substances are protective and meet the standards established by the statute, this process will avoid unnecessary expense for entities remediating contaminated property for redevelopment.

In addition to updating Chapter 250 MSCs, as previously noted, this proposed rulemaking includes changes that would add groundwater and soil MSCs for three compounds in the PFAS family – PFBS, PFOS, and PFOA. The proposed standards for these three chemicals are based on data in toxicological studies published by EPA. Under Act 2, the Department directly incorporated EPA's 2016 HALs for PFOS and PFOA as groundwater MSCs and used EPA's data for those HALs to calculate soil MSCs for both compounds. With respect to PFBS, the Department is proposing soil and groundwater standards based on a 2014 EPA Provision Peer-Reviewed Toxicity Value (PPRTV).

Finally, this proposed rulemaking would clarify procedural issues related to the administrative requirements of Act 2. In particular, this proposed rulemaking would clarify requirements for remediators and municipalities regarding public participation and public involvement plans, update requirements for acceptable "practical quantitation limits" related to the precision of laboratory testing, update requirements for professional seals from professional geologists or engineers, provide resources to calculate MSCs, and clarify the proper submission of various reports related to the Act 2 Site-Specific Standard.

These proposed amendments would affect owners, operators and purchasers of properties and facilities who are remediating contaminated sites. These proposed changes are not expected to add any significant costs, overall, to the cleanup of contaminated sites under this program.

The number of completed remediations vary each year. On average, remediators apply the Act 2 remediation standard to approximately 800 contaminated properties across the Commonwealth. Generally, any cost related to a given site remediation depends on which regulated substances are being remediated and what the specific soil and groundwater conditions are at the site.

The Department worked with the Cleanup Standards Scientific Advisory Board (CSSAB) during the development of this proposed rulemaking. CSSAB, established by Section 105 of Act 2, 35 P.S. § 6026.105, consists of professionals with cross-sectional backgrounds, including engineering, biology, hydrogeology, statistics, medicine, chemistry, toxicology and other related fields. CSSAB assists the Department and the Board to develop Statewide health standards, determining the appropriate statistically and scientifically valid procedures and risk factors, and provides other technical advice as needed to implement Act 2.

During CSSAB meetings on August 1, 2018, February 13, 2019, and June 12, 2019, CSSAB members were given the opportunity to review and provide feedback on draft regulatory amendments to Chapter 250. The Department worked with the CSSAB to resolve concerns and agreed to evaluate additional suggestions during the next review cycle for this rulemaking. The CSSAB additionally met on October 29, 2019, to further discuss the rule. Following these presentations and discussions, the CSSAB issued a letter related to the proposed regulatory amendments included in this rulemaking.

As set forth in the Regulatory Review Act, the Department will consider any comments and recommendations made by the Commission, as well as the House and Senate Environmental Resources and Energy Committees and public commenters, prior to final adoption of the enclosed rulemaking.

Please contact me by e-mail at ledinger@pa.gov or by telephone at 717.783.8727 if you have any questions or need additional information.

Sincerely,

Laura F. Edinger

Laura Edinger
Regulatory Coordinator

Enclosures

0120-FM-PO0011 6/2015

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
POLICY OFFICE

# TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO THE REGULATORY REVIEW ACT

I.D. NUMBER: 7-352

SUBJECT: Administration of the Land Recycling Program

AGENCY: DEPARTMENT OF ENVIRONMENTAL PROTECTION

## TYPE OF REGULATION

- [x] Proposed Regulation
- [ ] Final Regulation
- [ ] Final Regulation with Notice of Proposed Rulemaking Omitted
- [ ] 120-day Emergency Certification of the Attorney General
- [ ] 120-day Emergency Certification of the Governor
- [ ] Delivery of Tolled Regulation
  - a. [ ] With Revisions
  - b. [ ] Without Revisions

RECEIVED
JAN 27 2020
Independent Regulatory Review Commission

## FILING OF REGULATION

| DATE | SIGNATURE | DESIGNATION |
|---|---|---|
| 1/27/20 | Pamela J Nygard | Majority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY<br>Representative Daryl Metcalfe |
| 1/27/20 | | Minority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY<br>Representative Greg Vitali |
| 1/27/20 | | Majority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY<br>Senator Clew Yaw |
| 1/27/20 | | Minority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY<br>Senator Steve Santarsiero |
| 1/27/20 | K J Cooper | INDEPENDENT REGULATORY REVIEW COMMISSION<br>David Sumner |
| | | ATTORNEY GENERAL (for Final Omitted only) |
| 1/27/20 | | LEGISLATIVE REFERENCE BUREAU (for Proposed only)<br>Leah Brown |